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ORIGINAL ARTICLES.

ONE HUNDRED CASES OF TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY H. G. McCORMICK, M.D.

WILLIAMSPORT, PA.

Since the first day of September, 1893, I have treated 124 cases of typhoid fever. The first year I treated twenty-four cases; twenty-one recovered and three died. From Sept. 1, 1894, to March 1, 1897, I treated 100 cases of typhoid fever with one death. Why this great difference in mortality? This is the question I purpose answering for you today.

The first twenty-four cases were treated as the text-books and college professors teach that such cases should be treated. Baths were used where such treatment was practicable, and where I could persuade the patient that a cold bath was a pleasant pastime. The diet was carefully regulated and in the absence of my knowledge of a better drug, sulpho-carbolate of zinc was given. I believed then what was greatly taught on this subject, that typhoid fever was a self-limited disease and that I must carefully watch the symptoms, and when anything occurred that in any way jeopardized the life of the patient I must give something for its relief. But even after doing all this I found that I lost one patient out of every eight, though the text-books said this was not an undue proportion.

The first case I lost was a young, previously healthy man; on the sixteenth day he had a hemorrhage. I gave him a hypodermic injection of morphin and ordered acetate of lead by the mouth. The next day he had another hemorrhage, much larger than the first. I then called a consultation of the staff and they agreed that everything was being done for the man that could be done. His bowels were now bound up and he was very tympanitic. I continued the treatment as before, and on the twentieth day he had another hemorrhage and died on the twenty-first day from exhaustion.

My second death was similar to the first and the same general *approved* plan of treatment was followed. After the second hemorrhage she was very tympanitic and died of perforation, seventy-two hours after the the second bleeding.

My third death was a child 13 years old who had become so weak and debilitated from a long siege of this disease that she turned over in bed and died from sheer exhaustion.

The average length of time these twenty-four cases ran until the temperature reached normal, was thirty-two and one-half days. In a discussion on the subject of typhoid fever, before our County Society, I made the statement that I purposed showing by a series of cases what I had endeavored to prove by theory, that there was not a single valid reason that, up to that hour, had been offered which went to prove that typhoid fever was a self-limited disease, except the one single statement of the fact, that it had always been considered a self-limited disease and all the text-books had so taught.

At this time I abandoned all the old plans of treatment and entered upon an entirely new one, with the result that in thirty months I have treated 100 cases of typhoid fever and have lost but one case, and this was a man who had been admitted to the Williamsport Hospital on the fifteenth day of the disease and died on the nineteenth from perforation of the bowel, as was determined by a postmortem.

The average length of time these cases were sick until the temperature reached normal, was twenty-two days. Thirty-eight of these cases were seen on or before the seventh day, and the average time until the temperature reached normal was sixteen and one-half days. The longest any one case ran was twenty-two days and the shortest thirteen days. Of those seen after the seventh day, under the same plan of treatment, the average was twenty-six and three-seventh days. Of the one hundred cases nineteen had hemorrhage, some very severe; one bled six pints in six days; another seventy ounces in forty-eight hours. There were eleven with relapses. There was but one who was seen prior to the seventh day that had a relapse.

The treatment used was as follows: The diet was carefully looked after. That food was selected which could be most easily digested and assimilated, and no more was given than could be readily digested. Many physicians suppose if they give a certain quantity of milk each two or three hours that they are providing the necessary nourishment. This is a great error. There are cases that should be given little, if any milk, for some can not digest it, and when this is the case the patient is rendered much worse by its giving. The stools should be examined and if undigested milk is found, the diet should be changed, for I have seen a few cases, which were naturally mild, that were rendered severe by the continued use of milk diet. It is far better to give all these cases a mixed diet of milk with animal broths and buttermilk, than to rely wholly upon any one kind of diet, and the moment any one article is found to disagree with a patient it should be immediately abandoned.

The room should be clean and airy. The bed-clothing should be changed daily and the patient should have a tepid sponge bath twice each day. The mouth and teeth should be cleansed each day, and the patient should be kept as clean as can be made with soap and water.

Now for medicines. The bowels should be kept thoroughly opened, and as a rule nothing will do this better than calomel. This should be given every two hours until the bowels are thoroughly moved, and what I mean by this is that there should be from four

to eight passages in twenty-four hours. Salts may be substituted in order to secure desired number of movements, or when the longer continued use of the calomel is not deemed desirable. Sometimes I combine podophyllum with my calomel in order to make it more affective, but by all means the bowels were kept open, and in not a single instance was anything given to control the bowel movements. The colon was was washed out twice each day in order to secure the proper cleanliness, and if the temperature was high this enema was ice water. If there was a weak pulse salt was added to the water in order to secure its absorption. In many of these cases the glands of the colon are involved; Dr. Osler says in one-third of all the cases. If this is true you are carrying your solution to the seat of disease. Water is given by the mouth as freely as the patient will take it, and they are encouraged to take water in large quantities.

We have now rendered the alimentary canal as nearly aseptic as it can be without medicines, and no undigested food has been allowed to accumulate to undergo decomposition to form poisons, which are readily absorbed by these inflamed glands. In addition to the above I give every two hours, in emulsion, two drops of guaiacol. I give it entirely for its antiseptic effect, and know of no better intestinal antiseptic, for I believe it is still guaiacol when it reaches the diseased parts. This was to a great extent proven in the case that died from perforation. An autopsy was made and it was found that the perforation had taken place three inches above the ileo-cecal valve. When the abdomen was opened the unmistakable odor of guaiacol was found to be present. The guaiacol that had been given this man was still guaiacol at the ileo-cecal valve and would not undergo any further change in passing through the colon.

There are some patients with irritable stomachs who are unable to take the guaiacol in this form. When this was proven I then gave them the next best intestinal antiseptic—carbonate of guaiacol—in two-grain doses every two hours. Stimulants were rarely given. If the heart was weak I gave one-thirtieth grain of strychnia nitrate, every three hours, or oftener if demanded. When hemorrhage occurred, 15 minims of ergotal was given hypodermically, and the colon was washed out with an ice-water enema of normal salt solution. This cleaned out the colon, stimulated contraction of the bowel, carried off the clots of blood—a fruitful soil for propagating the poison—and rendered the parts as nearly aseptic as possible.

If the prostration from the loss of blood was great the patient was at once transfused with a normal salt solution, at a temperature of 107 degrees, to the amount of a quart. This quickly strengthened the heart's action, filled the blood vessels with a fluid which went to nourish the body, and the patient rapidly rallied. In one case transfusion was performed four times; in another three times, and in quite a number of cases once.

In not a single case of hemorrhage was there any opium, or its alkaloid morphia given, and they all recovered without the use of acetate of lead.

This may appear like wandering a good distance from the tenets as taught by our teachers, but there has never been a greater error promulgated than the teaching of the giving of opium in hemorrhage in typhoid fever, and a large number of the mounds in our cemeteries can be charged up to this false doctrine. What reason do they offer for such practice? Simply that it controls peristaltic action and renders the bowel for the time being, asleep. I grant all and more than they claim, but what is it doing when it is controlling this peristaltic action? It is also drying up the secretions from the whole alimentary canal, the food taken decomposes, forms a gas, tympanites follows, the bowel is put upon the stretch and hemorrhage of necessity is more likely to follow, the weakened bowel due to ulceration is more likely to be perforated, and you are adding to a mere complication one that will likely terminate in death.

If the temperature is inclined to remain above 103.5 degrees, I apply guaiacol, the amount used varying as to the age and susceptibility of the patient, etc. I have now applied guaiacol locally for the reduction of temperature, 1066 times and I have found it a prompt and efficient remedy. The dose should vary from 10 to 25 drops. There is an impression in the minds of many physicians that this is a very dangerous drug; it has not proven such in my cases. Care must be exercised in its use; this is not only true of guaiacol but it is true of all active medicines. That it will promptly reduce temperature can not longer be questioned, and that it does so without weakening the heart muscle, I have proven by many clinical cases, as shown in a previous article.

The use of the coal-tar products for the reduction of temperature in typhoid fever is a very dangerous class of remedies and I believe they should be universally condemned. I have seen at least two deaths that could be traced to their use.

Does not the treatment, as here outlined, appeal to your reason and common sense? Is it not a rational treatment to apply to the diseased parts, as taught us by the pathologist?

Has not the result as shown by my 100 cases, with one death, appealed to you as being a mortality rate that has not been equaled by any form of treatment, except that of the cold bath, and this only in the hands of its originator? Dr. Brand, after he had treated over 200 cases of typhoid fever with the cold bath, made the statement that when he heard of a death from typhoid fever in a young person, of previous good health, he believed there had been a homicide. This is strong language and should cause each one to consider, in their deaths from this disease, who is the guilty party. I believe there are entirely too many die from typhoid fever who, if they had been treated properly, would have gotten well. A physician said to me, "I gave a patient with typhoid fever guaiacol and he died;" this is probably true. It will not do to give your patient guaiacol and stop at that. There must be an intelligent management of the case and an intelligent use of the drug. There is as much skill required in the use of drugs as there is in the use of the pen, pencil or the knife. If a case of typhoid fever is properly treated, the dry tongue, sordes of the mouth, the tympanites and low muttering delirium, as described in the books, will rarely be seen.

As a result of my experience in the treatment of typhoid fever, I am thoroughly convinced that a statement which I made two years ago, that typhoid fever prior to the seventh day was capable, by proper treatment, of being very much shortened in its duration was true. I am further thoroughly convinced, that in cases seen and properly treated before the seventh day, a death will be a rare occurrence.

The whole question of the treatment of typhoid fever might be summed up as follows:

Keep the bowels thoroughly open.
Keep the alimentary canal as aseptic as possible.
Give good nourishing food—that which the patient will readily assimilate.
Give plenty of water both by the mouth and rectum.
Use the best intestinal antiseptic known.
Never give opium.
Never give phenacetin or acetanilid.
Give strychnia as indicated.
If this plan is followed you will rarely have a death from typhoid fever.

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DIET IN TYPHOID FEVER.

Read by title in the Section on Practice of Medicine at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1–4, 1897.

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When typhoid fever kills it does so either by perforation or exhaustion, the proportion of the former being estimated at 5 to 10 per cent. The main factors in producing the exhaustion which causes the death of at least nine-tenths of the fatal cases are toxemia, continued fever, diarrhea and vomiting and intestinal hemorrhage. The heart is ordinarily the best index of the presence and degree of exhaustion, and the most frequent serious pulmonary complication, hypostasis, in its various forms, degrees and consequences is the direct outgrowth of the cardiac weakness. Moreover typhoid fever is not short and sharp like pneumonia, but of long course, and usually attended with decided, often with very great wasting of the muscular and fatty tissues.

Most of us are agreed that we are not as yet acquainted with any therapeutic measures which will either abort or very materially shorten the course of the disease. We are, I think, unanimous in believing that husbanding the strength from the start through skilful nursing, the judicious use of water externally and internally, and the supervision of a wise attendant on the watch for and prepared to meet such indications as may arise, materially modifies the course of the disease and lessens its mortality. If what I have assumed to be facts be really facts, the question of diet must be a very important one in the management of typhoid fever. It is through the food which is assimilated, not through that which is merely put into the stomach, that we seek to limit the tissue waste while the process is active, and also try to land the patient on the low shore of convalescence with as much of his property as may be; for the recovery of his property is a necessary preliminary to the attainment of the high table-land of full health.

Under the old doctrines as to inflammation fever was an unfailing indication for depletion; directly by venesection, pukes, sweats and purges; indirectly by starvation. Indiscriminate direct depletion is now a thing of the past, and since the time of Todd the fact has gradually been more and more clearly recognized that the febrile state is often an indication for more, rather than less, nourishment, with selection as to quality rather than diminution as to quantity. In the shorter essential fevers a few days' starvation can not do much harm, and may even be of great service with a certain class of patients. But suppurative fever, for instance, whether of tubercular or other origin, especially if chronic, we feed to the largest limit; and we do this because we treat the condition and not the disease, individualizing our cases. Since our knowledge of gastric chemistry has been enriched by the adaptation of the soft catheter to another hollow viscus at the opposite extremity of the abdomen, a more complete explanation has been afforded for the fact which we knew by practical experience before, that gastric digestion is often weakened in the febrile state. But the same practical experience teaches us that it is not always so, or very materially so, and when theory and practice conflict the former must prevail. Have we not fully escaped from the domination of the old doctrine as to the lowering treatment of inflammation, or are there valid reasons why we should be less bold in feeding our typhoid patients than our chronic febrile consumptives? Three such reasons deserve special consideration. In the first place, typhoid is far more frequently a self-limited disease than is phthisis; but the fact of self-limitation does not seem to me to warrant us in underfeeding, for the less the patient loses the less does he require to regain. In the second place, typhoid has constant intestinal lesions which may bleed or perforate and which may be accompanied by a general catarrhal state of the intestinal tract. I may perhaps add here that diarrhea is not nearly as constant a symptom in typhoid fever as the books lead students to believe. In at least 50 per cent. of my hospital cases no diarrhea was present at any time. We must therefore have reference to the local intestinal lesions as well as to the general state. In a disease of such long course, it is impossible to prevent accidents by putting the bowels in splints, even if it were desirable to do so. More or less peristalsis must go on, and waste matter must pass over the ulcerated surfaces; and how deep or extensive the ulcerated surface may be in any particular case no symptom or group of symptoms enable us to measure. Hence, it seems rational, quite apart from the fever, to withhold from the diet any articles the residue of which is liable to irritate either the mucous membrane in general or the ulcerated portion in particular. This would seem a fair explanation for the popularity of milk as a diet for typhoid, containing as it does a large proportion of water and every principle necessary to nutrition so combined as to make relatively small demands on the digestion of most persons, and leaving a residue which, though notoriously large, is not mechanically irritating. The objection to milk is that it is repugnant to a few persons and becomes either repugnant or monotonous to a considerable number sooner or later. It is not necessary here to specify the many expedients which may and often must be resorted to to overcome this objection, and in some cases to render it digestible whether palatable or not. Milk is likely to maintain a very important, perhaps leading place in the diet of typhoid as well as of other diseases and conditions. For a number of years I adhered as strictly as possible to an exclusively milk diet in typhoid fever until at least a week had elapsed from the date of the first normal evening temperature. I closed my ears to the clamors of adults, and my eyes and heart to the tears of children, as I now believe unnecessarily. Thirdly, it was only comparatively recently the general opinion of the profession that relapse is or may be due to errors in diet. I well remember the time when a fresh access of fever led my teachers and me to carefully inquire into the kindness of officious friends. It was often proved that forbidden fruit actually or metaphorically had

been brought in by a visitor, and this was an entirely satisfactory explanation. When proof could not be had the fact of relapse was strong presumptive evidence of sin. We know better now, and while we recognize that errors in diet may produce fever, as may fatigue or excitement in convalescence from any severe disease, we do not believe that they can start up a fresh invasion of bacilli from within. One of the things which set me thinking on this question of the diet in typhoid was the favorable course run by several acute febrile cases for whom I ordered a full diet because they were weak; believing at the time of so doing that typhoid could be excluded, but being forced to the conclusion later that only typhoid fever could explain the whole course of the disease. These patients did perfectly well, were happier and convalesced more rapidly than my recognized typhoid cases fed exclusively on milk. For five years now, I have been enlarging the diet of my typhoid cases and have seen no reason to regret this course, but on the contrary found cause for satisfaction.

During the twelve years, 1886 to 1897 (both inclusive) 380 cases of typhoid fever have come under my personal care in the Massachusetts General Hospital. From 1886 to 1893, 233 cases were treated under a milk diet with a mortality of 10 per cent. From 1892 to 1897, 147 cases have been treated under a much more extended diet with a mortality of 8.1 per cent. I know well the liability to reach false conclusions in reasoning from too small figures in a disease like typhoid fever. And it is also true that water has been used more efficiently of late than in former years. But I can see nothing in my figures to contravene my observation that an enlarged diet has not been injurious. I would not be understood as advocating an indiscriminate diet. My plea is simply for treating the patient rather than the disease; for feeding him with reference to his digestive power rather than solely or mainly with reference to his fever; for the view that the danger of accidents from the local intestinal ulceration is not increased by allowing him to partake of articles which leave no irritating residue, and which cautious trial shows are digested without disturbance or discomfort. At one end of the scale are the cases with such irritability or weakness of the stomach as to lead to the unfortunate term gastric fever, or those with pronounced diarrhea and undigested food in the stools; at the other end are those more numerous cases with clean tongue and a desire for food. Between the two is every gradation. The life of the former may depend on the skill and ingenuity of the doctor, assisted by the intelligent devotion of the nurse. The comfort and the duration of disability of all others may be materially modified for good by careful study and wise individualization of our cases. A long list of permissible articles from which selection can be made for different cases, and for the same case at different times under varying circumstances can be given. That which I append makes no claim to completeness, but is meant merely to be suggestive and illustrative.

TYPHOID DIET.

1. Milk hot or cold, with or without salt, diluted with lime water, soda water, apollinaris, vichy; peptogenic and peptonized milk; cream and water (*i.e.*, less albumin), milk with white of egg, slip, buttermilk, koumyss, matzoon, milk whey, milk with tea, coffee, cocoa.

2. Soups: beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash; carefully strained and thickened with rice (powdered), arrowroot, flour, milk or cream, egg, barley.

3. Horlick's food, Mellins' food, malted milk, carnipeptone, bovinine, somatose.

4. Beef juice.

5. Gruels: strained cornmeal, crackers, flour, barley-water, toast-water, albumin, water with lemon-juice.

6. Ice-cream.

7. Eggs, soft boiled or raw, egg-nog.

8. Finely minced lean meat, scraped beef. The soft part of raw oysters. Soft crackers with milk or broth. Soft puddings without raisins. Soft toast without crust. Blanc mange, wine jelly, apple sauce and macaroni.

CAN TYPHOID FEVER BE ABORTED—THE ANSWER.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY J. E. WOODBRIDGE, M.D.

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There are departments in medicine of which it may be truly said that "reasoning is deceptive;" in which actual experience gives the only light by which our footsteps may be guided; in which the clinical experience of a single observer, who has been wisely taught and has wisely followed the teaching, is of greater value as evidence of the justness of a conclusion, than is the subtlest reasoning of the most astute logician. This is eminently true of the subject which is presented for your consideration today.

The question which forms the title of this paper can be correctly and forcefully answered only by those who can speak from bedside experience.

The subject has already been fully and ably discussed, every imaginable argument has been adduced to establish a negative, but the force of most of these has already been broken by the silent footfalls of advancing science.

The effect of the antitoxins of diphtheria, the bubonic plague and other diseases, and the discovery of Laveran, that ague is a specific infection in which every drop of blood is invaded by a living organism, coupled with the well known fact that a single dose of one of the least harmful of drugs will not only abort an attack of malaria, but will effectually disinfect the blood circulating in every part of the body, from the tip of the finger to the ball of the toe, emphatically negatives all the arguments that have been advanced to prove that the course of the specific infections can not be interrupted, and especially that typhoid fever will run its course in defiance of all medication; yet these dogmatisms have been quoted, repeated, reiterated and applauded, as if they contained the very essence of all the wisdom of all the ages, past, present and future. They are not true, but the declaration that typhoid is a curable malady has been for years and is yet nearly always greeted with such "acrimonious and vituperative dissent" that it should not surprise us if the bravest men were to hesitate before reporting cases of "aborted typhoid fever," well knowing that such reports would expose them to the ridicule, invective and brutal sarcasms of those who, lacking their knowledge of the power of antiseptic medicine, receive with derision every allusion to the curative treatment of the specific infections.

No wonder then that physicians who cure these diseases are afraid to publish their reports; no wonder that some physicians who promised to send me the clinical histories of their cases have never done so; no wonder that some of my friends, who kindly sent valuable statistics, with permission to use their names in this report, afterward withdrew their consent. The wonder is, that under the circumstances any physician should have had the courage of his convictions and should have dared to allow me to use the data which are here presented. It was, therefore, with extreme diffidence that I wrote to a few physicians who had previously written to me for specific information about this method of managing typhoid fever, asking them for reports of their cases for publication.

But the medical profession it seems is equal to any emergency and there is no demand that can be made upon it in the name of suffering humanity, which it does not immediately supply, as the generous and noble responses that are embodied in this report clearly prove; and despite the fact that the ordinary difficulties which beset the gathering of statistics on any new method of treatment have been enormously augmented for the abortive treatment of typhoid fever by the sharp criticism to which it has been subjected, I present herewith the statistics of 6,911 cases of typhoid fever that have been treated by the method I have advised, with quotations from the reports of a few of those physicians who have not only had the intelligence to institute scientific treatment and with it to abort the disease, but have also had the heroism to brave the innuendoes and criticisms of the molders of medical thought, and have supplied the data which must unequivocally place this heretofore most terrible sickness among the curable diseases. In signing these reports they have braved dangers as real as those which confront the soldier on the battlefield, and in speaking out in advocacy of the abortive treatment of typhoid fever they have jeopardized their professional careers, but they have exhibited the true nobility of their characters.

At the last meeting of this ASSOCIATION, the method of managing typhoid fever, which is dealt with in these reports, being under discussion, certain arguments were advanced with the manifest object of detracting from the value of the treatment by showing that the typhoid fever of this country and during recent years, is not the same disease that prevailed here twenty or thirty years ago or that is today so much dreaded in foreign lands. These arguments must have sounded strange to the ears of scientists who regard the bacillus of Eberth as the cause of the disease and who would naturally expect a given cause to produce a given effect under like circumstances. These arguments, aside from being unscientific, are in conflict with well known facts. For example, from 1864 to 1869 there occurred in the Boston City Hospital 152 cases of undoubted typhoid fever, 21, or 13.81 per cent. of which died, while the duration of the illness of those that recovered was 24.25 days. In St. Bartholomew's Hospital, London, 1860 to 1864, there were 244 cases of typhoid fever treated, with 27 deaths, or 10.06 per cent., while in the same hospital during the five years preceding the opening of the discussion of this subject in this Society (1893), 406 cases were treated, with 54 deaths, a death rate of 13.2 per cent. In the Buffalo General Hospital during the years 1892-3-4 (the only report to which I have access at present), 271 cases were treated to a finish with 47 deaths or 17.34 per cent. In the St. Louis City Hospital, during the years 1890 to 1893, there were treated 353 cases with 73 deaths, or a death rate of 20.68 per cent. During the years 1889 and 1890, there were treated in the Providence Hospital, Washington, 72 cases, of which 23 died, a death rate of 31.94 per cent. "Murchison places the death rate from this disease at 17.45 per cent., which is perhaps none too high for this city (Washington) during the time mentioned (July 1 to Oct. 31, 1895)." (Dr. Kober in Report of Health Office District of Columbia, 1895.) It is well known that a few other hospitals have reported lower death rates in a few instances and it is frankly admitted that these numbers are too small to eliminate possible errors, or to constitute a safe basis upon which to found exact conclusions, but so too are those from which are obtained the marvelously low percentages so vociferously acclaimed by a few enthusiastic advocates of cold water. They are large enough, however, for the purpose for which they are introduced—not to antagonize any particular method of managing the disease, but to prove that typhoid fever in this closing decade of the nineteenth century has lost none of its old-time virulence and intractibility; that it is still man's most insidious and relentless foe, running as tedious and obstinate a course to as certain death today as it did forty or fifty years ago.

The grave character of typhoid fever being proven we are confronted by several important questions: Can the disease be aborted? Can its course be interrupted? Can its death rate be lowered? Can its grave symptoms be ameliorated? Can relapses be prevented? Can complications be averted? In other words, is typhoid fever amenable to medical treatment? For answer I submit the following reports and in making the estimation of the value of the statistics, I beg you to remember that the physicians who have presented them were applying a method which was not only new to them, but which embodied practices that so far contravened all accepted theories, that many hesitated and did not dare, all at once, to throw away the old and fully adopt the new plans.

FRANCIS M. GREEN, M.D., Lexington, Ky., May, 1897:—I have treated in all thirty cases and without a single death. I aborted the disease in several cases, the temperature reaching normal by the seventh to ninth day. In the JOURNAL some time since I alluded to the ignorant and unjust criticism of the method. It is unfair in its enemies to cry out against our diagnosis without having first tried the treatment in cases which they themselves have pronounced typhoid fever. It is sufficient that the treatment will prove successful in a large majority of cases when commenced early.

WILLIAM M. WRIGHT, M.D., Huntington, Tenn., May, 1897:—I approach a case of typhoid fever now with more confidence than ever before, and I attribute it to your method of treatment. To say that I am highly pleased at being able to make favorable mention of your method to physicians with whom I come in contact but puts it lightly. I tell them it is now the *sine qua non*. I am an unqualified advocate of and enthusiastic believer in the virtue of this method.

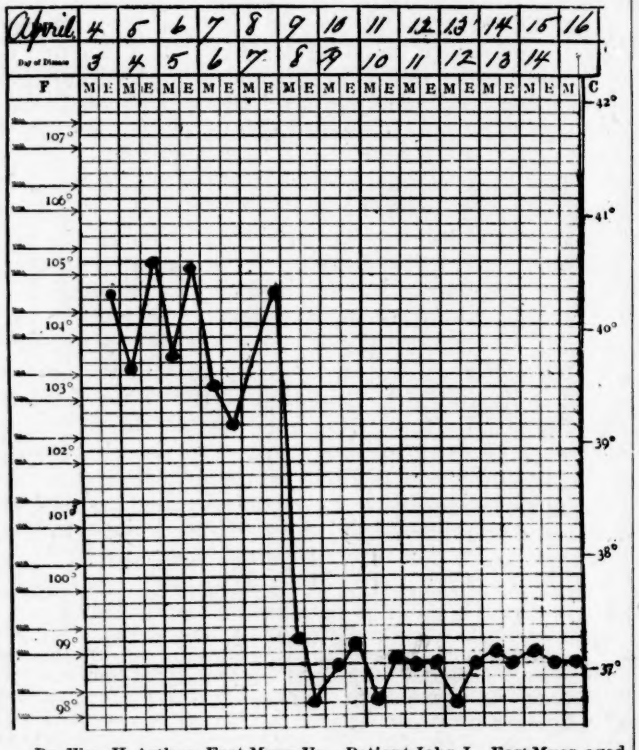
WALTER N. SHERMAN, M.D., Merced, Cal., May, 1897:—I also use your tablets with splendid results in many other diseases in which I think intestinal antiseptics are indicated.

SAMUEL W. HOVER, M.D., Fayette, Ohio, May, 1897:—I am sorry I can not give you a fuller report of my cases, but if I had any number of cases of typhoid fever I should use your treatment on every one. My cases have all done so much better under your treatment that I have practically all the field in this neighborhood and for all ailments. My worst case was an old lady aged 71 years and she had a very bad attack with all characteristic symptoms of the disease. No one thought she could live. I broke the fever in nine days and she made a rapid recovery. Six cases.

CARL BONNING, M.D., Detroit, Mich.:—I treated only two

patients suffering from typhoid fever by your method. The first was an old lady nearly 60 years old, who was treated according to your method from the beginning. This was a mild case of true typhoid fever which ran its usual course of twenty-one days, with good recovery. The second case was a boy 14 years old, treated by your method from the first day. The symptoms became worse from day to day, temperature rising constantly and going up to 105 degrees F.; evacuations very frequent. On the ninth day a severe hemorrhage of the bowels set in, when I stopped your treatment at once, as I could not help but think that the treatment was the cause of his early and severe hemorrhage. The boy finally recovered under different treatment, though he was confined to his bed for six weeks more. Since then I have not given your treatment another trial.

HENRY CLAY DALTON, M.D., St. Louis, Mo., May, 1897:—I have treated eleven cases by the Woodbridge method, in fact all cases that I have had since I have commenced the treatment, because I certainly would not now treat that disease by any other method. All the patients recovered. None of the cases had any complications or sequelæ. With the exception of one case the tendency of the fever was to steadily abate. In the exception referred to the temperature became higher for two days after the commencement of the treatment, in fact the temperature increased two or three degrees. At the end of the second or third day it fell to about 102 degrees



Dr. Wm. H. Arthur, Fort Myer, Va. Patient John L., Fort Myer, aged 15 years; admitted to hospital April 4, 1896; diagnosis, typhoid fever. Previous history: Patient treated for intermittent fever for three days. April 4 and 5 delirium continued, quinin stopped, resisted all treatment. April 6, modified Woodbridge treatment commenced. Patient slept all night. April 7, no delirium. April 8, guaiacol added. April 12, all treatment stopped, liquid diet. April 14, ordinary diet resumed. Modified Woodbridge treatment consisted in multiplying dosage and dividing intervals by four. Patient's sleep never disturbed, but treatment resumed immediately upon awakening. Guaiacol carbonate was not on hand at first. It was procured and added on April 8. Persistent delirium of a very obstinate and exhausting kind was unaffected by chloral. Disappeared as soon as evacuations of bowels became free and frequent.

and in less than a week was entirely gone. In none of my cases was there delirium or tympanites. Dr. Simon Pollak of this city, at my suggestion, treated his son after your method. He was delighted with the treatment. I feel that you have a grand treatment of the disease and that it is the duty of every physician to use it. Certainly up to the present time there is no remedy which approaches it in efficiency. My experience is somewhat limited, but in the cases in which I have used it patients have gotten along most comfortably and the disease has been cut short. Eleven cases: no deaths.

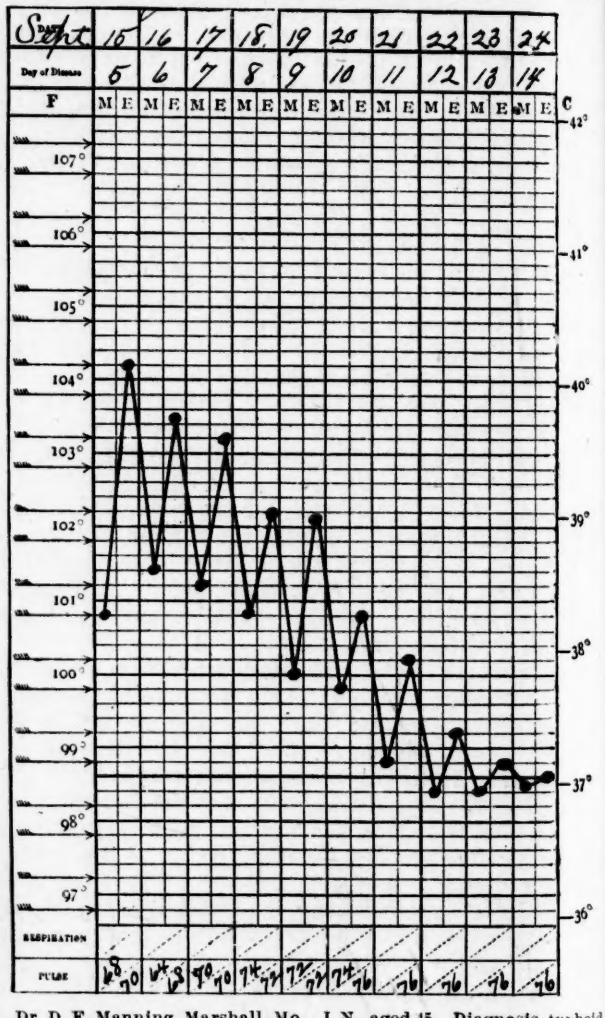
J. W. R., M.D., Missouri, May, 1897:—I think there is nothing like "Woodbridge treatment for typhoid fever." I have had the best results in every instance, with no deaths.

CHARLES S. JAMES, M.D., Centerville, Iowa, May, 1897:—I have been using the Woodbridge treatment for a considerable length of time with very satisfactory results.

BENJAMIN MOSBY SMITH, M.D., Davis, W. Va.:—I have the first case to lose since I adopted your treatment two years ago. The great trouble is physicians do not use the treatment as they should or as directed. I am with you heart and soul and feel certain it is the only sure treatment we have now.

EDWIN O. BOARDMAN, M.D., Overton, Neb., May, 1897:—I have treated thirty-six cases by your method. The first ten cases were not so successfully treated as were the later ones, because of two facts: 1, the medicines were not properly prepared; 2, they were not properly given. Since then I have used the tablets prepared by P. D. & Co., without a single death, my two deaths occurring among the first ten. One of these was complicated with an old heart lesion—a woman 45 years old; the other a boy of 8, died of purpura hemorrhagica ten days after the subsidence of the fever.

FRANK C. MYERS, M.D., Kalamazoo, Mich., May, 1897:—I have been very much pleased with your treatment and have used it faithfully for two or three years, in fact I was the first



Dr. D. F. Manning, Marshall, Mo. J. N., aged 45. Diagnosis, typhoid fever.

to use it in this city. I have read two or three papers in its favor at our Kalamazoo Academy of Medicine.

ROBERT J. HILL, M.D., St. Louis, Mo., May, 1897:—I have so thoroughly adopted your plan of treating typhoid fever and typhoid conditions that, judging from my past experiences, I have no more typhoid. I do not allow the disease to go so far but that when I meet a case which I think from the past history might run into it I immediately go for Woodbridge. I have no deaths and no protracted cases. I have placed my genuine cases at fifteen. I have no doubt the number would run much higher, but as I said before, all cases of a suspicious character are at once put on that treatment. I have seen much benefit from your plan in cases of septicemia and even in fermentative dyspepsia.

BYRON I. PRESTON, M.D., Rochester, N. Y., May, 1897:—I regret that my first cases were not properly recorded but they were apparently aborted—five of them—inside of ten days

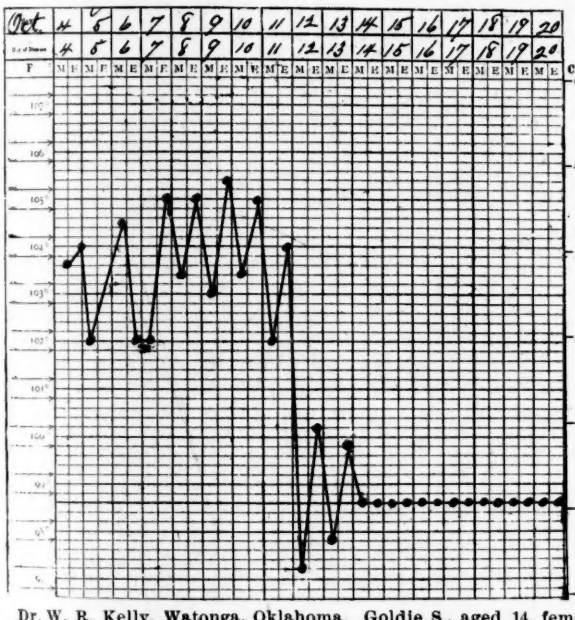
They all had nose bleed, ileac tenderness, tympanites, diarrhea and the usual temperature of typhoid fever at first.

GEORGE M. ATWOOD, M.D., Haverhill, Mass.:—I never saw patients with typhoid have so few unpleasant symptoms as these had after once getting down to business with the bowel.

WILLIAM A. JARNAGIN, M.D., Atlanta, Ga., May, 1897:—I am perfectly satisfied with the rationale of the Woodbridge plan. Unless my experience is very different from what it has been heretofore, I will adhere to the treatment in the future. I believe this treatment is the best—it certainly appeals to common sense.

JOSEPH A. DANIEL, M.D., Davenport, Iowa, May, 1897:—Should I be unfortunate enough to contract typhoid fever I should want to be treated by your method.

DONALD MACREA, M.D., Council Bluffs, Iowa, June, 1807:—I learned the value of the Woodbridge treatment of typhoid fever soon after reading your first paper before the AMERICAN MEDICAL ASSOCIATION. Since then I have used it in all cases of typhoid, indeed in all cases of continued fever, both in hospital and private practice. I do not know how many cases I have used the treatment in nor have I any charts—I am not methodical enough for that—but I must have used it hundreds of times. I not only depend on the Woodbridge treatment myself, but I have spoken so strongly in its favor before medical societies, holding out such bright and sanguine hopes of recovery, that it is very generally used in these parts. I have never had a death since using the treatment. The duration of the disease does not seem to have been particularly shortened but the course is modified to such a degree that instead of



Dr. W. R. Kelly, Watonga, Oklahoma. Goldie S., aged 14, female, admitted Oct. 4, 1895; diagnosis, typhoid fever. October 4, began treatment on fourth day of disease. Temperature below normal October 12, up to 100 on 12th, normal on 14th. Gave sponge baths and phenacetin to control excessive temperature.

wearing anxiety and constantly doubtful prognosis, my visits seem to be almost unnecessary and the case smoothly runs along. The only objectionable feature in the treatment is that the patient becomes tired of the bed and of being half sick.

ISAAC A. MCSWAIN, M.D., Paris, Tenn., May, 1897:—The method suggested and urged by you has contributed greatly toward the limitation and alleviation of typhoid fever, and while I have seldom been able to use the exact formula of your prescriptions, yet your pointed arguments in favor of the antiseptic plan have been convincing and have caused great changes in the management of this dreaded disease. I have also used your No. 3 alone, and have been gratified with the results.

GEORGE W. LONG, M.D., Graham, N. C., May, 1897:—I have also tried the method in several cases of malarial fever with very satisfactory results (following up, of course, with quinin, etc.). At first I was much prejudiced and very slow to make the venture. Since my limited experience I feel emboldened to try the treatment further.

HENRY G. CRUMP, M.D., Seddon, Ala., May, 1897:—I have given your treatment a test in some cases of typhoid fever, and as far as my experience goes I think it will do all you claim.

W. H. NIXON, M.D., Killeen, Texas, May, 1897.—My uniform success has turned me from a "doubting Thomas" to a true believer. Let the physician stop and think and give the treatment a fair trial and, reasoning from my own experience I think he will be more than pleased with the result.

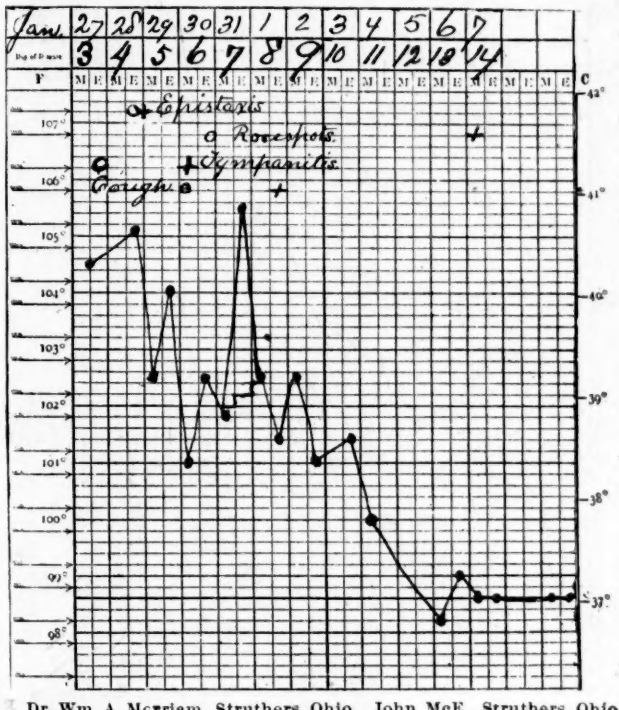
T. M. L., M.D., Virginia, May, 1897:—I must say that I am thoroughly convinced of the efficiency of your treatment and expect to continue its use until I find some other that is better.

MATTHIAS BORTZ, M.D., Cleveland, Ohio, May, 1897:—I have been using your system, antiseptic and eliminative, for several years, during which time I have lost no patient.

HENRY W. LATHAM, Latham, Mo., May, 1897:—I have been using "Woodbridge treatment" almost exclusively during the past four years; the longer and the more faithfully I apply it, the better I like it. I would be glad, and I am sure that it would be a great blessing to humanity and an honor to yourself if you would compile your ideas and experiences of the nature and treatment of typhoid fever in book form. For the principle of intestinal antisepsis is neither understood nor appreciated by one hundredth part of the profession, and after an experience of twenty-five years I admit that I groped in the dark, with no definite idea of the treatment of that terrible fever, until I got it from your writings.

OLIVE E. WORCESTER, M.D., Conant, Fla., June, 1897:—I used the "Woodbridge treatment" of course, . . . excellent recovery.

ALFRED WOODHULL, M.D., Denver, Colo., May, 1897:—One



Dr. Wm. A. Merriam, Struthers, Ohio. John McE., Struthers, Ohio, aged 14; admitted January 27, 1897. Reaction of serum on Eberth bacilli positive.

serious case came under my knowledge last year in which, partly by my suggestion, the treatment was attempted. The beneficial effects hoped for did not immediately follow and after a somewhat prolonged trial it was abandoned. The case ultimately recovered, although the illness was very grave and prolonged.

R. E. SEVIER, M.D., Liberty, Mo., May, 1897:—Not one case in which I had a fair chance died.

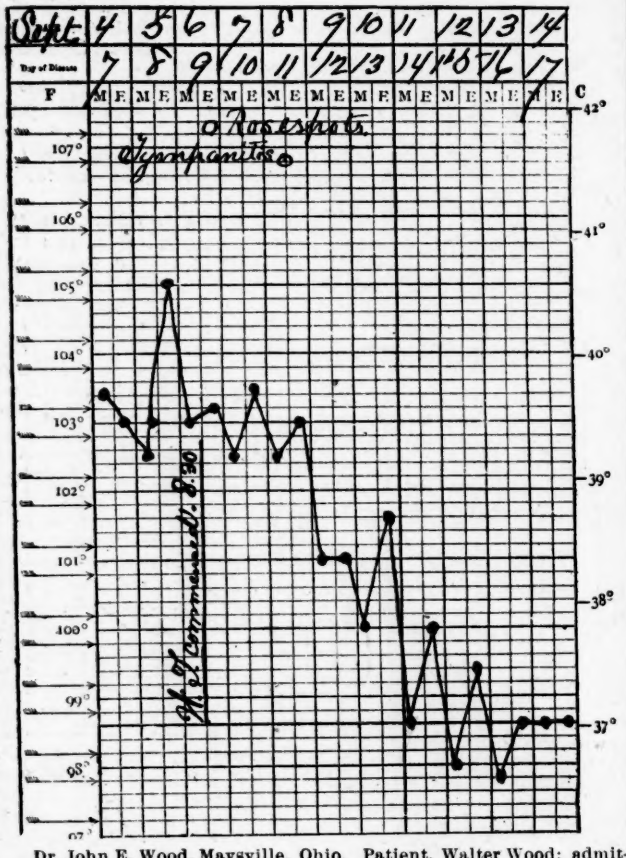
D. Y. STEM, M.D., Slidel, Texas, May 1897:—I was gratified with the results obtained. All the literature that I had received to this date failed to outline your treatment as recommended in your recent work on typhoid fever; so, at first, I feared to give up all of the older methods and rely strictly on yours. Had I followed your instructions in full I believe I would have shortened the disease in all these cases. While your treatment is adverse to all taught in the standard works that have been examined by me, I feel now that it is the ideal treatment and that it will be a boon to suffering humanity. I wish to congratulate you on the marked success you have had in the treatment of typhoid fever and to praise the untiring energy you have manifested in trying to thwart a disease so much to be dreaded.

RICHARD S. MARTIN, M.D., Stuart, Va., May, 1897:—I shall continue to use it in all of my cases, as I am highly pleased with the results. I am confident that it is far superior to any other known treatment.

WILLIAM C. HUMPHRIES, M.D., Acworth, Ga., May, 1897:—I am a strong advocate of the "Woodbridge treatment" of typhoid fever. I am sure the mortality would be *nil* if the cases were seen in time and the treatment begun early and used persistently. I think it is intestinal antisepsis *par excellence*. I am a thorough convert to the method.

ARTHUR U. WILLIAMS, M.D., Hot Springs, Ark., May, 1897:—I have also used this treatment in diseases not recommended by you—malarial cases where the patient seemed to be drifting into malarial fever—general malaise, etc. Last fall my wife had all the premonitory symptoms of typhoid fever; nothing seemed to do her any good. I gave her your tablets and in a week she was on the way to recovery, and soon was all right. Many similar cases have occurred in my practice and I have been delighted with the results.

JOSEPH H. GREEN, M.D., Decatur, Ga., May, 1897:—I have been treating fevers in general by your method since last June. Several of the cases were seen for the first time in the second and third weeks of the disease, and while they ran on for two or three weeks longer, yet their symptoms were very much ameliorated and they were made comfortable and all terminated in a happy recovery.



Dr. John E. Wood, Maysville, Ohio. Patient, Walter Wood; admitted September 4, discharged September 14. Diagnosis, typhoid fever.

WILLIAM P. PIERCE, M.D., Hoopestown, Ill., May, 1897:—In the fall of 1895 I was called by the attending physician to see a young man, 20 years of age, dying of typhoid fever. I had been hearing for several days that his death was expected at any time and that the case was deemed hopeless. I found the patient unconscious, cyanotic, his heart beats 150, pulse at the wrist not to be detected, skin cold, and bathed in a clammy sweat, teeth loaded with sordes, low muttering delirium, restlessness and extreme jactitation, stools passing unnoticed into the bed, bowels tympanitic. The patient could not swallow. The room was filled with a sickening, cadaverous odor. We put one tablet of Woodbridge No. 1 in his mouth every fifteen minutes. He was soon able to swallow and took the tablets every fifteen minutes all night. He continued to improve—the Woodbridge method was fully carried out with almost marvelous effect, the patient slowly but regularly convalesced and in two weeks was discharged.

RAY W. GREEN, M.D., Worcester, Mass., June, 1897:—My cases are hardly worth reporting as, in the majority of cases, the treatment was not begun early. While I have not seen any cases aborted by your treatment, I am confident that the course of the disease was modified favorably, and the convalescence rapid.

VILAS E. LAWRENCE, M.D., Ottawa, Kan., June, 1897:—The disease has lost much of its dread to me. My patients begin to improve in one or two days after beginning treatment and all the symptoms die away except the fever, which gradually disappears. Most of my patients wanted more milk than I thought best to allow them. I discovered that the secret lay in giving medicine energetically and keeping the bowels well open all the time.

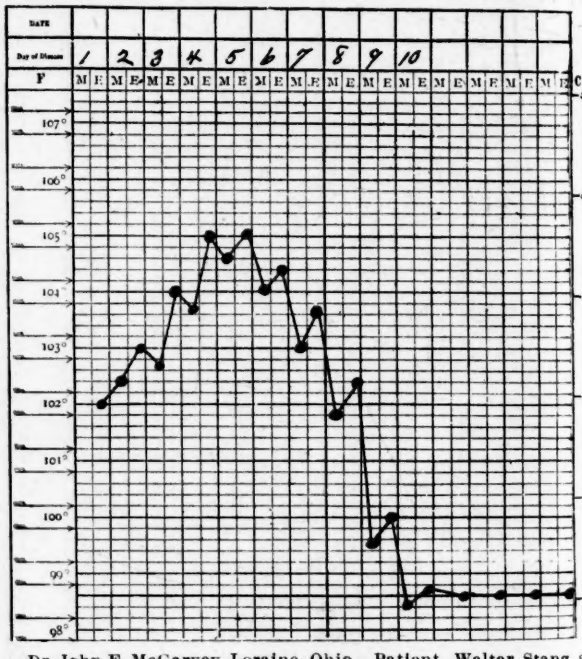
F. MARION KENT, M.D., Spring Valley, June, 1897:—I first used your method of treatment in a number of cases three years ago. My results were much better chan formerly, but I did not succeed in aborting but a few of the cases. One death occurred. Since then I have been using your treatment and have had very good results—no death in three years. My results in the first cases may have been due to impurity of drugs or improper administration of the same.

WILBERT B. CLARK, M.D., St. Louis, Mich., June, 1897:—One of my patients was in a family where there were two others sick with the same disease, and treated by other physicians, and both of these terminated fatally.

GRANVILLE MACGOWEN, M.D., Los Angeles, Cal., June, 1897:—I have treated a few cases by your method and have been pleased with the results. None of the cases died and none relapsed.

EPHRAIM J. MCCOLLUM, M.D., Tiffin, Ohio:—If any other doctor has had better success than I have reported, I should like to hear from him. I have been called into families where other physicians have suspected typhoid—that shows the faith of our community in the Woodbridge treatment and in those whom they know have been successful in the use of the same.

CLYDE W. CRUMLINE, M.D., Lone Pine, Pa., June, 1897:—I



Dr. John F. McGarvey, Loraine, Ohio. Patient, Walter Stang, aged 18 months. Admitted March 2. Recovered. Woodbridge treatment. This was a typical case and all his friends said he would die. I said he would live.

feel we owe a great debt of gratitude to you. My individual experience is limited, but I followed your directions faithfully. Not a dry tongue, no tympany, no "head symptoms," and in fact not a thing that I did not wish to see after the first twenty-four hours of treatment. There was no question about the correctness of diagnosis.

PERLEY P. COMEY, M.D., Clinton, Mass., May, 1897:—I have used your treatment in every case and feel perfectly satisfied with it. It is a sure thing and I advise it in all cases.

WILLIAM S. SMITH, M.D., St. Clair, Minn., June, 1897:—I do not hesitate to say that this treatment is by far the best yet devised for treating typhoid fever. In my hands it has yielded better results than the enthusiasts of other methods have claimed for their favorites.

EDWARD L. BAKER, M.D., Indianola, Iowa, May, 1897:—While I have not aborted cases, the comfort from the absence of delirium has been marked and recovery after intestinal hemorrhage has taken place—before, such cases have died in my hands.

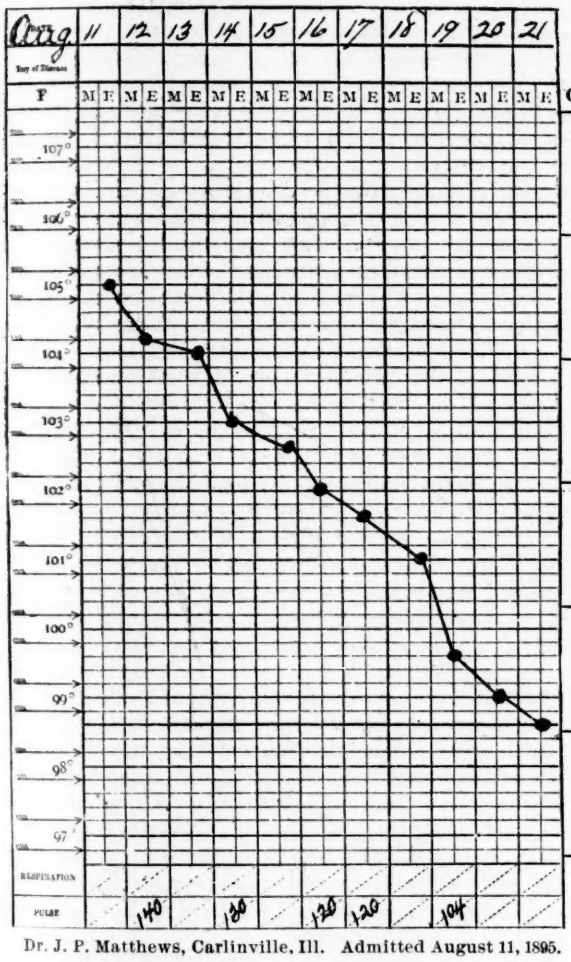
WALTER W. L. OVERFIELD, M.D., Forreston, Ill., May, 1897:—Prior to November, 1896, I treated my typhoid patients by

the older methods, but I am now convinced that the treatment advised by you is far superior to any heretofore in use.

T. W. S., M.D., Virginia, May, 1897:—Although I varied the method slightly, I consider it the only treatment to use.

Lorenzo D. Ray, M.D., Blakesburg, Iowa, May, 1897:—I remember one case, a very severe one, of a man who drank to excess. The symptoms were grave; the prognosis of consulting physicians was sure death. After consultation I began your treatment, improvement began inside of eighteen hours and his recovery was uneventful. He was married, 58 years of age a hard worker and a harder drinker. This treatment has worked exceedingly well for me in all cases especially of men who are inveterate drinkers.

Matthew K. Elmer, M.D., Bridgeton, N. J., May, 1897:—In one case it cut the disease short, but in the others, while I thought it made the cases lighter, the cerebral symptoms less severe and the patients easier in every way, and they ran a very mild course, the duration of illness was about the same as usual. However, it is a great satisfaction to have these clear minds and mild symptoms.



Dr. J. P. Matthews, Carlinville, Ill. Admitted August 11, 1895.

James A. Lifferty, M.D., Concord, N. C.:—I am well pleased with the treatment.

Milton C. Connor, M.D., Middletown, N. Y., May, 1897:—I have used the treatment, with my own modification, in every case that has come under my care for the last three years. Some cases relapsed from stopping the treatment too soon.

J. B. Taylor, M.D., Broadway, Ohio, May, 1897:—I believe the Woodbridge treatment is the best we have for typhoid fever. Hereafter I shall adhere strictly to your plan. All of my cases recovered, the average duration of illness being about seventeen days. I am perfectly satisfied that I was not energetic enough in the beginning. One point in particular I noticed, that while giving the treatment the tongue and teeth remained clean, the first being moist and the latter free from sordes; and there is also less distension of the bowels.

Columbus N. Udell, M.D., Blakesburg, Iowa, May, 1897:—This treatment is all right.

Stewart Robinson, M.D., Alleghany, Pa., May, 1897:—I had no relapse under this method—one case was tedious but finally made a complete recovery.

Joseph O. Yost, M.D., Youngstown, Ohio, May, 1897:—Deaths? No, indeed! I would feel guilty of an unpardonable sin if I failed to use the "Woodbridge treatment" in typhoid fever or in fact in any intestinal trouble of bacterial origin.

Warren C. Eustis, M.D., Owatonna, Minn., May, 1897:—I had one relapse but a return to your treatment prevented complications and in two weeks the patient was again convalescent.

Lowell M. Gates, Scranton, Pa., May, 1897:—I have faith in the method but think it might be improved. I do not like to give medicine every fifteen minutes, so have given two every hour. If double the strength, it would not require so many tablets. The principle of intestinal antisepsis, combined with elimination of the septic material in the intestinal tract is doubtless the correct one in the treatment of typhoid fever. It has the advantage over the Brand method in being more reasonable. To treat by the Brand method alone is as unscientific as to treat the fever of an abscess by the same method without opening and washing out with an antiseptic solution.

Joseph E. Bundy, M.D., Cissna Park, Ill., May, 1897:—We had an epidemic of rather a malignant type and I began treating typhoid in the usual way and lost two out of eight patients. Not satisfied with this I began with your antiseptic treatment and did not lose another case out of twenty. In these cases all of the symptoms were pronounced, and in those in which there was hemorrhage it was slight. I am satisfied that under your treatment most cases can be saved if seen in time.

Aloysius G. Blincoe, M.D., Bardstown, Ky., May, 1897:—I have never before seen eight successive cases of typhoid fever do so well.

C. W. Foster, M.D., Woodfords, Maine, May, 1897:—I have used your treatment with most satisfactory results, and shall use it again if I have occasion.

George W. Hall, M.D., Saint Louis, Mo., May, 1897:—We were much pleased with the effect of the remedies used. I believe that your treatment, modified to suit the requirements of individual cases, will be the treatment of the future in typhoid fever, and I feel that we owe you many thanks for directing the profession to the efficiency of "intestinal disinfection" in this disease. If we except the use of turpentine by Wood, and the use of nitrate of silver by Dr. J. K. Mitchell, to you belongs the honor of directing the attention of physicians to the intestinal canal as the place to which the main treatment should be directed.

C. Richter, M.D., Ashland, Wis.:—Most of my patients were in St. Joseph's Hospital, Ashland, Wis., and the charts are in the possession of the Sisters there. I have treated thirty cases and had two deaths. One of these had been treated by a druggist for two weeks while ambulatory drastic purgatives were given followed by salts; when the man fell into my hands he was in a precarious condition. The outraged intestinal mucous membranes responded by copious watery discharges, later by hemorrhages. There was an enormous tympanites and consequently and partly dependent on this, a weak heart's action. The Woodbridge treatment did not improve his condition and another hemorrhage ended the case fatally.

The second fatal case was of a nervous temperament. His wife and parents of a like disposition, proved a decided stumbling block to any rational treatment. Dr. G. W. Harrison, who treated the case, falling ill, I attended the gentleman. I remember that I predicted to Dr. Harrison a fatal termination of the case. His pulse was fast—120 to 125. His nervousness and restlessness were excessive, his general physique was anything but robust. I saw him about the second week of the disease. In his case I have the strongest reason to believe that the treatment was not properly carried out, from the mistaken kindness of wife and parents, who positively refused to awaken him to give the medicines. His life ebbed away by hemorrhages in the third week. Yet in his case, I noticed some of the symptoms—or rather the absence of the symptoms usually met with in typhoid fever under this treatment and of which in a general way I shall speak later. I consider both of these cases for obvious reasons as not properly to be classed under the head of those patients in whom I exhibited the Woodbridge treatment; however, I desire to be unbiased in the matter and consider it my duty to mention these cases and something of their history to you. Outside of these cases I have had no death while using the Woodbridge treatment in typhoid fever. My observations while treating typhoid fever patients with the Woodbridge treatment show that the disease has run a much shorter course than usual in typhoid fever. In several cases, fever stopped on the fifth and sixth day. Tympanites was entirely absent in all cases, after commencing. The stools, usually two in number during twenty-four hours, while soft, were not diarrheic nor very offensive. There never was a diarrhea with the characteristic pea-soup stools, but the

discharges were rather of a pultaceous nature. There was entire absence of distressing nervous symptoms—no severe headaches, no jactitation, no complications, no excessive thirst. In fact I base my recommendation of this treatment more upon its beneficial influence in abating these symptoms, than in particularly aborting or cutting short the attack, although it certainly has done so in several of my cases. My patients appear to me never to be very sick while under this treatment. The general clinical aspect of the disease was entirely changed and I say this after having seen and treated hundreds of cases of typhoid fever.

These are a few brief quotations from the reports of 193 physicians who have treated (since their previous report, or since they commenced the use of the treatment) 2,078 cases, with forty-five deaths. All of these reports have been received since I presented my paper to the Ohio State Medical Society on May 21, 1897, which gave the statistics of 5,449 cases and 105 deaths, all that had been reported to that date.

The statistics now show 7,827 cases treated with 150 deaths, a death rate of 1.91 per cent. This includes every death known to have occurred under the treatment, or any modification of it. Several deaths in which the treatment was known not to have been properly applied, a large number in which the treatment was not commenced until after the patient was moribund or practically so, and eleven in which the patient was so near the end when the treatment was commenced that death actually occurred within from eighteen to forty-eight hours, and a few cases in which the death was not due to typhoid fever or its sequelæ, are included. In only seven of the fatal cases do the reports show that proper treatment was instituted on or before the eighth day of the disease.

The average duration of illness in the 4,935 of the cases which recovered and in which it was given, was 12.7 days. Of the cases that recovered, 101 had intestinal hemorrhage. Ninety-five relapses are reported. Forty-seven were pregnant women, of whom two miscarried and died, six miscarried and recovered, and thirty-nine carried their children to full term, two giving birth to twins. In every instance in which the condition of the child is mentioned it is described as "fine," or "healthy," or "fine and healthy." Forty of the cases were complicated with pneumonia and recovered.

In 85 of the fatal cases the cause of death is given, 12 being due to intestinal hemorrhage, 14 to perforation, 10 to pneumonia. Six of the deaths are said to have been due to meningitis, 3 to consumption, 3 to Bright's disease, 2 to intussusception, etc. The stage of the disease at which the treatment was instituted is given in 69 of the fatal cases, in 10 of which it was from the first to the eighth day, in 10 from the eighth to the tenth day, in 14 from the tenth to the fourteenth day, in 16 from the fourteenth to the sixteenth day, and in 19 from the sixteenth day to the end of the third week. In 66 of the cases the stage of the disease at which the treatment was commenced is not stated.

These are the statistics and these brief quotations, together with the more than one hundred pages of closely typewritten excerpts from earlier reports presented to the Ohio State Medical Society, on May 21, constitute the verdict of the only jurors who are competent to render judgment, viz.: those who can speak from bedside experience. Among all these hundreds of reports, there appear but twelve adverse critics, not one of whom could possibly have been in possession of any accurate knowledge of the subject, not one of whom had written to me for advice, nor called me in consultation, nor read the one published article in which I have given detailed directions for the management of typhoid fever. At least seven of the twelve, by their own admission, and one other certainly, did not use the treatment as advised, and the remaining five spoke from an experience limited to the treatment of fifteen cases, an average of three cases to each observer. This is an experience altogether too insignificant to justify an adverse criticism.

What are the salient features of this mass of reports of physicians who have broken away from the ideas of the past? These reports show that those who followed the directions given in my book, "Typhoid Fever and its Abortive Treatment," most closely, had the best results and have become the most enthusiastic advocates of the method and, vice versa, those who diverged most widely from the prescribed course met with failures. They show that many dangerous modifications have been made and that some of the deaths are due to these alterations. They show that rapid recoveries have followed its use when first applied at all the different stages of the disease, and even after all hope had been abandoned by the attending physicians who had used other methods, and in several instances after the supervention of alarming intestinal hemorrhage, they show rapid recoveries during the most careless and injudicious use of the most subversive counterfeits of the original prescriptions. They show the administration of such infinitesimally small doses as would make the most orthodox homeopath blush and of doses the size of which would make the rashest heroic of the past tremble.

Despite these encumbrances, the method of treatment has passed through the ordeal of its first years of trial by both its friends and its enemies, who have treated 7,827 cases with 150 deaths, or a death-rate of less than 2 per cent. and a duration of illness of a trifle over twelve days. Under its benign influence the severity of the disease is greatly ameliorated, the symptoms minified, all grave complications averted and dangerous sequelæ prevented. The tongue is quickly rendered moist, tympanites promptly relieved, excrements lose their offensive odor, delirium is rare and the "typhoid state" unknown. The appetite soon returns and the patient expresses a desire to get up and eat solid food, which he may do if he has been properly treated from a sufficiently early stage so that ulceration of Peyer's glands has been prevented. Tedious convalescence is avoided, the patient generally passing rapidly from the fastigium of the disease to vigorous and robust health. These are results which have never before been obtained in hospital or private practice, in so large a number of cases, by so many physicians. They are results which were never before deemed possible. They have been obtained in most instances, without the use of the cold bath, medicinal antipyretics, or alcoholic stimulants, all of which are generally unnecessary. They prove by incontrovertible evidence that typhoid fever can be aborted. They teach that it is amenable to curative treatment in all of its stages and they go far toward proving that death or protracted illness are wholly unnecessary consequences of the disease.

In conclusion I wish to say that I am deeply grateful to the physicians who have so courtously and courageously responded to my letters of inquiry and in so doing have made it possible for me to submit this report.

637 Prospect Street.

TRICHINOSIS IN THE UNITED STATES; WITH THE REPORT OF A CASE.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY FREDERICK A. PACKARD, M.D.
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Feb. 5, 1897, an Italian was admitted to my ward at the Philadelphia Hospital, complaining greatly of pains in the thighs and legs. Owing partly to his natural mental obtuseness, partly to his nationality, the history that could be obtained even with the aid of an interpreter, was by no means satisfactory. On this account many points in his history are vague, while some of the facts in his case could not be determined.

He gave his age as 28 years, his occupation that of a farm hand. He could give us but little information in regard to the locality in which he had last worked, but said that it was in New Jersey. After three months of enforced idleness (from lack of work) he started to work on a farm on February 1. The work being too laborious for him he left the farm, although he seems not to have felt ill in any way. On the third of the month (two days before admission) he had a decided chill, with some vomiting but no diarrhea. On the day of admission the face had begun to swell. As to the dates recorded there may be some doubt, although repeated questioning only seemed to confirm the statements made above.

On examination it was found that he was a rather strongly built man. There was quite marked edema of the eyelids and the surrounding skin, especially above the brows. The swelling was quite sharply marginated above and over the malar bone, the skin being quite red and rather shiny. The pupils were equal and natural. The pulse was of good force, full volume and rapid. The tongue was slightly coated and rather dry. Examination of the heart and lungs showed nothing abnormal. The abdomen was rather scaphoid, showed no tender area or gurgling and there was no eruption. The areas of hepatic and splenic dulness were normal.

The joints were free from swelling, redness or heat. There was no visible change in the painful parts but the least pressure upon the legs or thighs at once caused complaint of pain. This tenderness was diffuse, in that it did not correspond to nerve trunks, blood vessels or bone, but was decidedly more marked toward the ends than over the belly of the muscular masses. The temperature on admission was 101.4 degrees, the pulse 94, respirations 20.

Sodium salicylate, gr. x, every three hours, and also a sponge bath if the temperature reached 103 degrees was prescribed. The patient passed a sleepless night, and on the next day complained rather more bitterly of muscular pain in the thighs and legs and also in the arms. Examination of the urine showed that it was yellow in color, of acid reaction, specific gravity 1025 and contained no albumin, but in the sediment there were found a few granular casts and leucocytes. He complained much of thirst and dryness of the mouth.

A daily record of the events of the case would be rather devoid of interest and it will suffice if the main facts of the clinical course are noted. The pain in the muscles of the thighs and calves continued without intermission until March 2, almost a month from the time of onset, although it is questionable whether they were very severe during the latter part of this time, inasmuch as they suddenly departed on that date, after a small incision of the calf. Insomnia was a marked feature for the first eleven days of his stay at the hospital. There was no vomiting after admission. The bowels moved three times on the day after admission, twice on the 9th and five times on the 10th of the month; but were simply brown, watery movements without distinctive character.

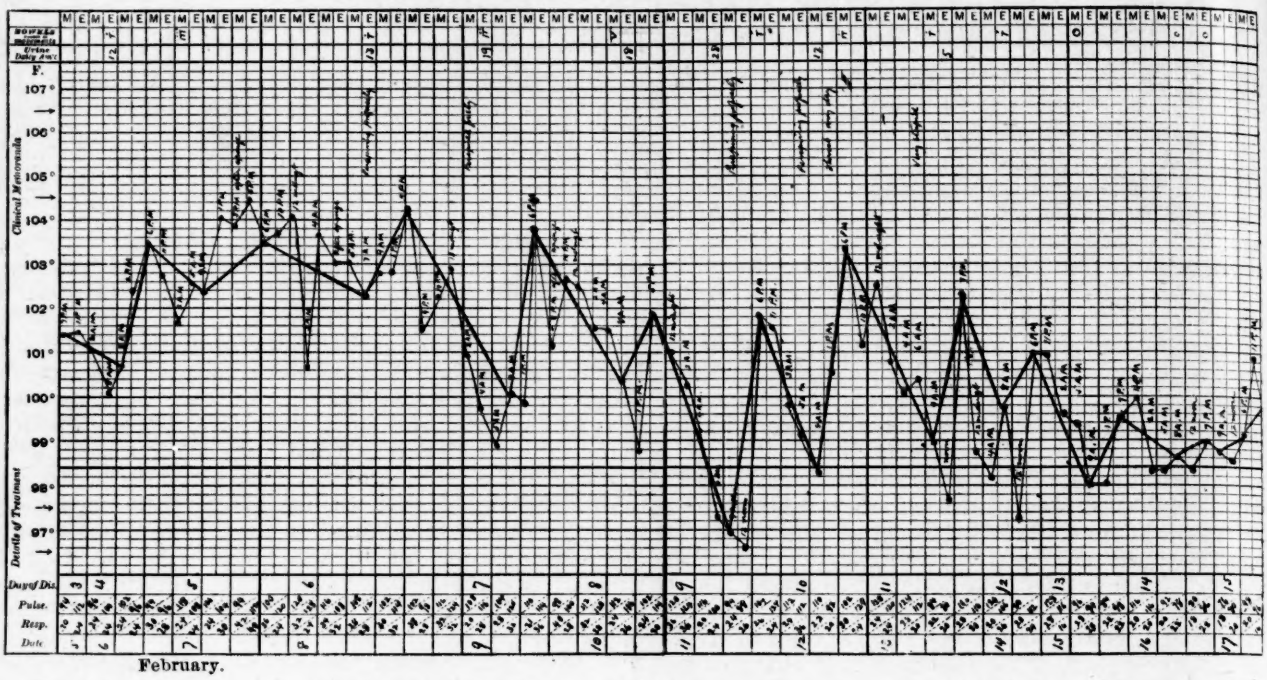
The edema of the face subsided after four or five days and the skin at once presented its normal appearance. There was no swelling, ecchymosis or redness of the conjunctiva at any time.

On February 9, the sixth day of his illness, the fourth day after admission, some small red spots were found on the abdomen, which were caused to disappear by pressure and were called "suspicious." These persisted but a day or two and were not succeeded by others. There was slight cough on and for a few days after February 16, with scanty, glairy white expectoration. This was examined on the day of appearance and a few tubercle bacilli were found. As the diagnosis of trichinosis had been made with quite positive certainty before that date and as there were no physical signs of lung involvement, subsequent careful examinations were made, always without result, and it was concluded that the presence of bacilli in the first examination must have been due to accidental contamination.

The urine was scanty, at times only measuring from twelve to nineteen ounces in twenty-four hours; the specific gravity was invariably high, ranging from 1024 to 1027. No albumin was ever found, but in two examinations there were found granular casts; on one occasion on ordinary sedimentation without the aid of the centrifuge. No estimations of urea, uric acid, etc., were made. Profuse sweating was present on four days (from the tenth to the fourteenth day of his illness).

The temperature, as will be seen by the accompanying chart, pursued a remitting course from the time of admission until March 9. For the first two days it progressively increased until it reached 104.4 degrees, then suddenly fell to 100.6 degrees, only to soon rise to over 103 degrees. On the ninth of the month (the sixth of the disease) he had but little fever for the greater part of the day, then the temperature quickly ascended to 103.8 degrees, to fall irregularly almost to the normal point on the next afternoon. On February 11 it suddenly descended to 96.6 degrees with no apparent cause other than profuse sweating, and from that date became extremely irregular until February 16. From that time onward it pursued an erratic course of slight elevation above the normal until it finally settled to the normal on March 9.

The pulse was accelerated during the whole time of fever but was not out of proportion to the elevation of temperature. At the latter part of the febrile period it became rather soft and compressible. The respirations were abnormally numerous from the day of his admission until several days after his temperature had remained at the normal point. As will be pointed out later, this was one of the most potent factors in arriving at the diagnosis. On February 23 the feet and legs were found to be very edematous, white in color and pitting deeply on pressure. This persisted until his discharge from the hospital on March 25.



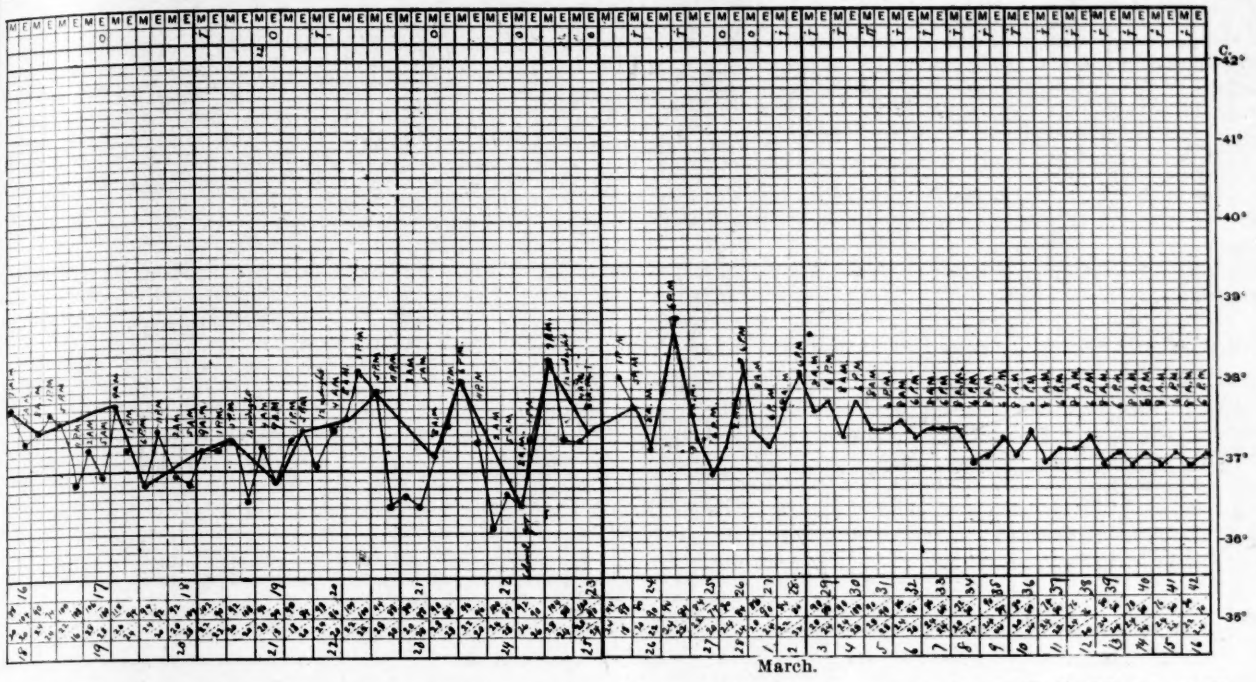
February.

The blood was examined March 10. The result showing 4,230,000 red cells per c.mm., hemoglobin 74 per cent., 8,000 leucocytes per c.mm. After reading T. R. Brown's "Studies on Trichinosis," in the *Johns Hopkins Hospital Bulletin* for April, 1897, I much regretted that repeated examinations with differential estimation of the leucocytes were not made. The estimation of the relative proportion of eosinophiles would have been especially interesting in view of Brown's finding a percentage of these corpuscles as high as 68.2 per cent., with corresponding decrease in the polymorphonuclear neutrophiles to 6.6 per cent. Brown's discovery of great leucocytosis (30,000 per c.mm.) was certainly not present in our solitary examination on the thirty-fifth day of the disease.[1]

Dr. C. A. Oliver kindly made an examination of the ocular conditions and furnished me with the following report: "Vision and accommodative power normal. Pupils 3.5 mm.; irides equally and freely movable to the light, convergence and accommodation, marked hyperphoria for near and far, eye ground normal with the exception of a fine striated hemorrhage partially overlying the inferior temporal vein just beyond its primary bifurcation in the left eye. Field of vision normal. *Summary:* No gross ocular changes except a slight disturbance in extra-ocular muscle equilibrium in the vertical meridian, and a fine isolated venous extravasation in the superficial layers of the left retina." The voice was at no time husky or altered beyond the changes produced by the dryness of the mouth. Laryngoscopic examination was negative. Hearing was at no time impaired.

On February 25 I lectured on this case in the clinic, giving the following reasons for my diagnosis: There were but six possible diagnoses: typhoid fever, rheumatism, influenza, non-discoverable tuberculosis, myositis from cause other than the trichina spiralis and trichinosis. Typhoid fever could be excluded by the atypical temperature curve, by the facial expression, the appearance of the tongue, the absence of tympanites, the lack of splenic enlargement, the character of the stools and the absence of the ordinary prodromal symptoms of that disease. The few "suspicious" spots on the abdomen were not atypical of typhoid and were not succeeded by other skin lesions. No form of rheumatism would give us such symptoms as we had in this case, except the so-called "muscular rheumatism," which is usually accompanied by but slight elevation of temperature, is seldom distributed in the manner here present, is seldom accompanied by pain of such acute character and would in no way account for any of the symptoms here present except the muscular pains. Influenza could with rather more difficulty be excluded, but was ruled out by the long continuance of the pain and temperature and by the extreme muscular tenderness present, while the occurrence of many of the symptoms could hardly be accounted for by even this protean malady. Non-discoverable tuberculosis should only be diagnosticated after careful exclusion of every other possible cause for the symptoms, and in this case there was no good reason for suspecting its presence, while it would only account for the temperature elevation and would not explain the peculiar pains. No cause for a non-trichinous myositis could be found. In favor of trichinosis were the muscular pain and tenderness, chiefly near the tendinous insertions of the muscles, the history of vomiting at the outset, the atypical and irregular temperature curve, the insomnia, the thirst, the sweating, the rapidity of respiration, but above all by the early swelling of the upper face and the late edema of the feet. Two points militated against the diagnosis—the absence of early diarrhea, the vague history of the eating of raw pork and the absence of other known cases of infection. The absence of diarrhea showed but little, inasmuch as it is by no means constantly present in trichinosis. Careful inquiry showed the occasional eating of bologna sausage as the only probable source of infection, while the fact that the patient immediately left the place where he probably contracted the disease and his ignorance as to his fellow laborers rendered futile any attempt to discover the existence of other

[1] Cabot (A Guide to the Clinical Examination of the Blood, 1897, p. 102) says that a case has lately been observed in Dr. Osler's clinic at Johns Hopkins Hospital with a leucocytosis of 25,000, and 64 per cent. of eosinophiles. It is possibly the case reported by Brown and referred to above.



cases. The two points that made me feel most certain of my diagnosis were the occurrence of frontal edema and the otherwise unaccountable rapidity of respiration, the latter being readily explained by the predilection of trichinæ for the diaphragm.

On March 2 the patient consented to the removal of a piece of muscle from the left gastrocnemius. A small piece was excised and showed a very large number of living, non-encapsulated embryonal trichinæ scattered among the muscle fibers. The operation greatly relieved his pain, so that there was no difficulty in gaining his consent to a second exploration in the gastrocnemius of the right leg on March 17. This specimen showed a great number of embryos with beginning capsule formation.

Some of this muscle fiber was fed to two white rats for experimental purposes, and it was my desire to present to this meeting some results of feeding experiments, but unfortunately I have not been enabled to complete my study of this portion of the subject in time to give my conclusions at present. Through the kindness of Dr. D. E. Salmon of the Bureau of Animal Industry I obtained a large supply of trichinous meat, which I have fed to white rats and guinea pigs in order to determine some of the still undecided questions in regard to the path of migration of the embryos and to the finer changes in the infected muscle fibers, but the investigation has required more time than I have been able to devote to it and I shall have to report my results in a later communication.

This is the fourth case in which I have made the diagnosis of trichinosis during life, but the first in which I have been able to persuade the patient to allow me to make the one crucial test in sporadic cases—the excision and examination of a piece of muscle. That many cases of infection by trichinosis must occur annually in this country can, I think, not be doubted. I regret that it was not in my power to further follow up the source of infection of my patient. When last seen my patient was steadily gaining flesh and had returned to work.

In the Twentieth Annual Report of the State Board of Health of Massachusetts, published in 1889, there is an interesting paper by Prof. E. L. Mark, of Harvard University, upon "Trichina in Swine." Between the years 1883 and 1888 he examined 3,064 hogs raised near Boston. Of these 394 or 12.86 per cent.were trichinous. Of 3,298 hogs raised in Massachusetts, 436 or 13.22 per cent. showed trichinæ on examination. Of the 234 examined hogs slaughtered for State institutions, 42 or 17.95 per cent. were trichinous. The pork intended for export or interstate trade (see 8th and 9th Annual Report of the Bureau of Animal Industry, 1891) is inspected, and if found free from trichina by the inspectors of the Department of Agriculture, is labeled as inspected and passed. For the year ending June 30, 1882, 1,267,329 hogs were examined. Of these, 25,899 were trichinous, 2.043 per cent. As the trade in pork within the States does not receive official inspection it may be that the figures given by Prof. Mark for Massachusetts are not very much, if at all, above the average of other States. If so, there must be frequent infections. Reports of individual cases, such as is the present contribution, are of but little value as compared with the accounts of groups of cases, yet I can not think that the disease is frequently diagnosticated when so little mention of it is found in the journals. Possibly the observers of the disease have not thought the subject sufficiently interesting to make it worth their while to publish their isolated cases. I hope that their opinion is not correct.

In order to obtain some idea of the prevalence of trichinosis in the United States and Canada I have tabulated the cases reported in the various journals, in so far as they are accessible to me. A tabulated list of these I have appended to this paper. The results may be summarized as follows:

Between the years 1864 and the present time there have been reported in the United States and Canada 357 cases of trichinosis. Of these, 243 recovered, 80 died, while in 17 the result is not stated. The mortality, therefore, of the 323 cases where the result is definitely stated, was 24.76+ per cent. The total above given is probably far to small, inasmuch as a large number of the reporters state that many cases

ANALYSIS OF CASES OF TRICHINOSIS OCCURRING IN THE UNITED STATES AND CANADA.

No.	Year.	Reporter.	State.	Place of Publication.	Total.	Recovered.	Died.	Remarks.
1	1864	Krombein	New York	Buffalo Med. and Surg. Jour., June, 1864, p. 430	7	5	2	The five marked as recoveries were still dangerously ill at time of report.
2	1866	T. S. Bardwell		Med. and Surg. Reporter, June 14, 1866				The same as those of (3) H. Ristine. Inserted owing to slight precedence of date of publication.
3		H. Ristine	Iowa	N. Y. Med. Record, July 16, 1866	9	4	5	Same cases reported by E. M. Smith, Chicago Med. Jour., Aug, 1866; Jos. H. Wilson. Med. Rep., St. Louis, 1866, and T. S. Bardwell (2).
4		B. H. Trust	Dist. of Col.	Savannah Jour. of Med. Nov. 1866, p. 373	1		1	Confirmed by autopsy.
5		Herman Kiefer	Michigan	Detroit Rev. of Med. and Phar., Dec. 1866, p. 10	1		1	Confirmed at autopsy.
6	1867	D. V. Dean	Missouri	Humboldt Med. Arch., Dec., 1867, p. 215	1		1	Found at autopsy.
7		Edmond Souchon	Louisiana	New Orleans Med. and Surg. Jour., May, 1867, p. 777	1		1	Found in a dissection. Body of a probable foreigner.
8	1868	E. C. Seguin	New York	N. Y. Med. Jour., May, 1868, p. 116	1	1		Diagnosis confirmed by excision of mus.
9		J. Wiesel	W. Virginia	Trans. of Med. Soc. State of W. Va., 1868, p. 303	5	5		Trichinæ found in ham.
10	1869	Albert H. Buck	New York	N. Y. Med. Rec., March 1, 1869, p. 7	8	6	2	
11		J. Stockton Hough	Pennsylvania	Am. Jour. of Med. Sc., April, 1869, p. 565	2	2		Discovered at autopsy.
12		Wm. E. Bessey	Canada	Canada Med. Jour., 1869, v, p. 544	9	9		
13		E. W. Boyles	Illinois	Chicago Med. Jour., 1869, xxvi, No. 1, p. 322	3	2	1	
14		E. R. Hun	New York	Trans. N. Y. State Med. Soc., 1869, p. 157	2	1	1	Diagnosis confirmed by harpoon in one.
15	1870	J. Stockton Hough	Pennsylvania	Am. Jour. Med. Sc., Jan., 1870, p. 282	2		2	Note upon them very brief. Probably discovered on autopsy or dissection.
16		Unsigned article		Chicago Med. Jour., Feb., 1870, p. 65	4	3	1	Confirmed by autopsy.
17		C. B. Reed	Illinois	Chicago Med. Jour., March, 1870, p. 129	5	3	2	Confirmed by autopsy.
18		F. Flandrau	New York	Trans. of Med. Soc. State of N. Y., 1870, p. 245	12	6	6	Diagnosis confirmed by finding trichinæ in ham and at autopsy.
19	1871	George Derby	Massachusetts	Rep. of State Board of Health of Massachusetts, 1871, p. 48	11	8	3	
20	1872	John C. Dalton	New York	Trans. N. Y. Academy of Medicine, 1872, Vol. iii, p. 1	6	5	1	Of the five recoveries three were probably in danger on the date of the report. The first case was examined by the coroner as suspicion of poisoning existed. Ham examined with positive result.
21	1873	E. J. Beal	Texas	The Med. Arch. (St. Louis) 1873, viii, p. 587	9			Result not given definitely.
22	1874	F. Hohly	Ohio	Trans. of Ohio Med. Soc., 1874, p. 308	2	2		Confirmed by excision of pieces of mus.
23		R. M. Bertolet	Pennsylvania	Trans. Path. Sec. of Philadelphia, 1874-5, v, p. 251	?		1	Report states that a family was affected. The specimen had been removed from fatal case and sent for examination.
24	1875	M. Northrup	Michigan	Rep. of State Bd. of Health, Mich., 1875, p. 32	5	3	2	
25		George Sutton	Indiana	Trans. Ind. State Med. Soc., 1875, cix	10	7	3	
26		E. C. Hadra	Texas	Trans. Texas State Med. Asso., 1875, p. 184	5	3	2	Trichinæ found in ham, also at autopsy.
27	1878	J. H. M. Peebles	Pennsylvania	Med. and Surg. Rep., June 22, 1878, p. 497	7	7		
28		J. G. Richardson	Pennsylvania	Phila. Med. Times, Aug. 31, 1878, p. 568	1	1		Found in dissecting room. Death from accident. Embryos calcified. Apparently a German.
29		David Mitchell	Michigan	Fifth Annual Report, State Board of Health of Michigan, 1878, p. lxxii	5	5		Examination of pork showed trichinæ
30		N. Williams	California	Trans. of State Med. Soc., of Cal. 1878, p. 103	10	6	4	
31	1879	N. Loughran	New York	Am. Med. Bi-Weekly, April 12, 1879, p. 169	5	3	2	Muscle examined in some. Diagnosis confirmed by postmortem in others.
32		Wm. Maddren	New York	Proc. Med. Soc., County of Kings, 1879, p. 118	5	3	2	Postmortem confirmed and muscles examined during life.
33		E. P. Gilpin	Indiana	Am. Practitioner, 1879, Vol. xx, p. 135	5	2	3	Diagnosis confirmed postmortem.
34	1880	Geo. E. Ranney	Michigan	Detroit Lancet, 1880-1, n. s. iv, p. 436	5	3	2	Confirmed at autopsy.
35		J. M. Barton	Pennsylvania	College and Clin. Rec., Nov. 15, 1880, p. 172	4	4		
36	1881	J. M. DaCosta	Pennsylvania	Med. News and Abstract, March, 1881, p. 131	1	1		Diagnosis confirmed by section of mus.
37		Christian Fenger	Illinois	Chicago Med. Rev., May 5, 1881, p. 208	2	2		Proven by harpoon in one.
38		Wm. Commons	Indiana	Trans. Ind. State Med. Soc., 1881, p. 54	2		2	
39		J. H. Alexander	Indiana	Trans. Ind. State Med. Soc., 1881, p. 50	2	1	1	Trichinæ found in muscle at autopsy.
40	1882	C. W. Woodridge	Massachusetts	Boston Med. and Surg. Jour., March 30, 1882, p. 299	2	2		Probably correct diagnoses; muscles negative on excision.
41	1884	S. B. Welch and McCaskey	Pennsylvania	Trans. Med. Soc. Penn., 1884, Vol. xvi, p. 518	14	10	4	Trichinæ found at autopsy.
42		A. B. Cates	Minnesota	Northwestern Lancet, Jan. 15, 1885, p. 117	13	10	3	Trichinæ found in ham.
43		J. D. Whitley	Illinois	St. Louis Med. and Surg. Jour., 1885, xlviii, p. 376	4	3	1	
44		J. M. Wyland	Iowa	Rep. of State Board of Health of Iowa, 1885, p. 71	6	4	2	
45		J. Savage Delavan	New York	Fifth Annual Report State Board of Health of New York, 1885, p. 112	12	11	1	Trichinæ found in muscles at autop sy.
46	1887	A. C. Kinney	Oregon	Pacfiic Med. and Sur. Jour., May, 1887, p. 281	15	14	1	Meat examined with positive result.
		G. W. Furey	Pennsylvania	Medical and Surgical Reporter, Nov. 5, 1887.	12	9	3	Fatal cases not seen by reporter. Occurred in three groups.
47	1888	W. L. Burrage and A. M. Sumner	Massachusetts	Boston Med. and Sur. Jour., Sept. 13, 1888, p. 249	1	10	1	Diagnosis confirmed at autopsy.
48		J. H. Wills	New Jersey	Trans. Med. Society of N. J., 1888, p. 108	11		1	Seven of the cases whfoh recovered not definitely reported.
49	1889	Frank Ferguson	New York	Proceedings of N. Y. Pathological Society 1889, p. 77	1	1		Unknown as to result. Brought for tumor in lumbar region. Portion of tumor showed trichinæ. Probably recovered.
50	1891	Alemby Jump	California	Pacific Medical Journal, April, 1891, p. 216	4	3	1	
51		John H. Barry	New York	New York Med. Record, June 13, 1891, p. 677	2		2	Diagnosis confirmed by autopsy.
52		A. Seibert	New York	New Yorker Med. Monatschft., Aug. 15, 1891	8			Result not stated. Occurrence merely mentioned.
53		W. Hutchinson Merrill	New York	N. Y. Medical Journal, Sept. 19, 1891, p. 320	1	1		
54	1892	C. W. Macdonald	Massachusetts	Boston Medical and Surgical Journal, June 2, 1892, p. 551	15	14	1	
55		M. H. Alexander	Mississippi	Memphis Journal of the Medical Sciences, October, 1892, p. 225	19	18	1	
56		Drew	Massachusetts	Massachusetts Medical Society Trans., 1892, and Rep. State Board of Health of Massachusetts, 1892-93. No. 34, xxxvi	21+	18+	3	Total number affected estimated at 50.
57	1895	Edgar Garceau	Massachusetts	Boston Med. and Sur. Jour. Nov. 21, 1895	1+		1	Many others ill, but number not given.
58	1897	T. R. Brown	Maryland	Johns Hopkins Hospital Bulletin April, 1897, p. 79	1	1		Diagnosis confirmed by removal of muscle.
59		F. A. Packard	Pennsylvania		1	1		Diagnosis confirmed by removal of muscle.
					340+	143+	80	
				Result not stated	17			
				Total	323			

occurred where medical aid was not sought. By the second table it will be seen that cases of the disease have occurred in seventeen States, in the District of Columbia and in Canada. The State from which the the largest number of cases has been reported is New York, which also heads the list in regard to the number of reports. On the other hand the largest definitely estimated epidemic occurred in Massachusetts. The greatest number of cases reported in one year occurred in 1892, when there is seen to have been more than fifty-one cases. The reason for this can not be given and there is no evidence of any growing frequency of the disease before or after that year. There occurred in that year three outbreaks of considerable size, two in Massachusetts (15 and 21+) and one in Mississippi (19).

Occurrence by States.	Total.	Number of reports.	Largest number at one time.
New York	80	11	12
Massachusetts	56+	6	21+
Pennsylvania	45+	9	14
Mississippi	20	2	19
Indiana	19	4	10
Michigan	16	4	5
Iowa	15	2	9
Oregon	15	1	15
Illinois	14	4	5
Texas	14	2	9
California	14	2	10
Minnesota	13	1	13
New Jersey	11	1	11
*Canada	9	1	9
West Virginia	5	1	5
Ohio	2	1	2
Louisiana	1	1	1
Maryland	1	1	1
District of Columbia	1	1	1

*Canada was inserted for comparison with the various States.

Year.	Number of cases.	Year.	Number of cases.
1864	7	1880	9
1866	11	1881	7
1867	2	1882	2
1868	6	1884	14
1869	24	1885	35
1870	23	1887	27
1871	11	1888	12
1872	6	1889	1
1873	9	1891	15
1874	3	1892	51+
1875	20	1895	1
1878	23	1897	2
1879	15		

In conclusion, I report this isolated case in order to again draw attention to a disease that I believe may be of greater present importance than is usually thought, and also to draw particular attention to a symptom that did much to guide me to a correct diagnosis—the great rapidity of respiration without other evident cause. I mention this symptom especially for the reason that, while many state that symptom was present in their cases, I do not believe that sufficient importance has been attached to rapid respiration as a prominent symptom of this affection. Finally I would urge the importance of certainly excluding trichinosis before making the much abused diagnosis of muscular rheumatism.

A REPORT OF TWO CASES OF MYXEDEMA WITH REMARKS ON AN ANOMALOUS TYPE.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY J. M. ANDERS, M.D., LL.D.

PHILADELPHIA, PA.

Myxedema is a general disorder of metabolism, dependent upon diminished or lost thyroid function. Among various morbid processes affecting the gland and which have been observed to give rise to myxedema are the following: atrophy, atrophy associated with calcareous degeneration, atrophy with enlargement of the pituitary body, actinomycosis, syphilitic degeneration of the organ, and the presence of neoplasms. It is to be recollected, however, that disease of the thyroid is not followed by cachexia strumipriva, provided even a small portion of the gland remains functional. The truth of this dictum was shown by the postmortem findings in the case contributed by Sieveking,[1] in which sarcoma had invaded the thyroid. This fact is also fully confirmed by the results of experimental extirpation of the thyroid in animals; total removal of the gland is regularly followed by myxedema (except functional accessory thyroids be present), while if even one-tenth of it is allowed to remain, the animal escapes the disease.

Of intense interest are recorded cases in which myxedema is either associated with or occurs in persons who have previously suffered from exophthalmic goiter. Baldwin [2] reports four cases belonging to this category. The first occured in a boy of ten, four years after Graves' disease; the second affected a girl of fourteen, two years after the exophthalmic goiter was cured; the third, a girl of fifteen first showed signs of myxedema five years after improvement from Grave's disease; and the fourth, a woman of forty-four, four years later.[3] It is an almost universally accepted belief that exophthalmic goiter is dependent upon excessive thyroid secretion the direct antithesis of myxedema. Like cachexia strumipriva, exophthalmic goiter is held by the weight of authority to be caused primarily by thyroid changes that bring about "thyroidation." Accepting this view it is quite conceivable that morbid processes first causing over-stimulation of the gland, may, in their future progress, lead to abnormally feeble or an entire absence of glandular secretion, and thus the former condition may predispose to the latter. The tendency to myxedema may be observed in several members of the same family, but I believe this to be rare.

The complex symptom-group of typical cases of myxedema is at present writing well known, and the literature bearing on this aspect of the subject is so extensive as to be much beyond the compass of this article. The following cases are reported: 1. For the reason that one of them manifested certain features of unusual significance. 2. To confirm the well-deserved professional favor gained by thyroid extract in the therapy of this disease. 3. To discuss a few of the main questions which have been raised in connection with the subject of treatment; and lastly, to direct attention to an anomalous or a rudimentary type that yields easily to sheep's thyroid.

Case 1.—M. R., age 50, female, fell ill about fifteen years ago, showing symptoms that were of slow and gradual development, becoming eventually typical of this affection. When I first saw the patient, the neck and supraclavicular regions were observed to be bloated; also the face, giving rise to a peculiar physiognomy. The features were bulky and expressionless, the face broadened, and the lineaments were practically obliterated; the lips were greatly thickened and the tongue markedly swollen. The general bulk of the body was obviously increased. The pressing finger showed an absence of pitting, even over the face, where stiff edema was most marked. A circumscribed red patch was noticeable on the cheek. The skin, particularly the backs of the hands, was dry, rough, somewhat scaly and inelastic; the nails were quite brittle, the hair was coarse and constantly shed.

The mental symptoms were not striking, except that thought and speech were slow, and the tone of the voice, was characteristically leathery. Hallucinations and impairment of memory were not observed. Occipital headaches and neuralgic pains

1 Gould's Year-book of Medicine and Surgery, 1897, p. 963.
2 Centralbl. f. innere Med., January, 1894.
3 Gould's Year-book of Medicine and Surgery, 1896.

were frequently complained of, as was also muscular weakness. The temperature was slightly subnormal (98 degrees), but cold hands and feet were not experienced.

There was slight though decisive albuminuria, and this symptom I learned had been present for four or five years at least, with hyaline and granular tube-casts at intervals.

On account of the presence of persistent albuminuria, her former physicians, two in number, had diagnosticated chronic nephritis. Temporary albuminuria with casts, is frequently met with in this disease, but the persistent characteristic features of chronic Bright's are not seen. After treatment with extract of thyroid for six weeks, the urine presented no abnormalities; neither has albumin or casts reappeared since then (as shown by repeated testing). Believing herself to be a sufferer from renal affection, and being possessed of superior intelligence, I was unable for a long time to induce the patient to make a trial of thyroid extract.

The interesting features were limited to the urinary phenomena. The relation of mere albuminuria or actual nephritis to myxedema is not definitely known. On the other had, it should be pointed out that the symptoms of Bright's have been observed to appear after the accomplishment of a cure by thyroid feeding, in cases in which no urinary phenomena had been present during the course of myxedema.

Case 2.—Mrs. Rebecca Coates, aged 50, a patient under the care of Dr. A. E. Roussel at the dispensary service of the Howard Hospital.[4] Mother died of phthisis, father killed in an accident. Patient has been in the best of health until three years ago, when menstruation ceased. Has had several attacks of rheumatism, and recently, the body in general has been getting more and more bulky. The face at present is puffy and edematous-looking, but does not pit on pressure. The skin is rough and dry and the lips blue. The hair is dry and falling out. The nails are clubbed and brittle. Her expression is heavy and stupid; the speech is slow and hesitating and the voice rough. The memory is impaired and she frequently suffers from headaches. Mental aberrations occur frequently, she talks incoherently and believes she sees objects. There is a certain stiffness and clumsiness in the gait. The respiration is slow. Her temperature is 98 degrees and she complains of feeling cold. She is easily fatigued, complains of a bitter taste in the mouth, has a poor appetite, and her bowels are irregular. The urine is normal (specific gravity 1020, no sugar, albumin nor casts present).

Treatment was commenced on March 20; the patient was asked to lead a quiet life and was put on the extract of thyroid, grs. iii, three times a day. On March 23 the patient returned and stated that since taking the remedy, she suffered greatly from pain in the stomach and bowels, and at night from aggravated nervous symptoms, such as mental wandering and the apparent sight of different objects. The dose of the remedy was then reduced to 1 gr., three times a day, and on March 27 the patient came back complaining that the medicine still disagreed with her and produced profuse sweats.

On April 1, the dessicated thyroid powder was ordered, grs. 3, three times a day. On April 6, the dose, which had been well-borne in the meanwhile, was increased to grs. 5, thrice daily. On April 10, she presented herself again and reported that she had been troubled with copious sweats, and had noticed that her weight (found to be 168 pounds at this time), was decreasing. On April 13, the thyroid gland powder was increased to 7 grs., three times a day, and on April 17, she complained of severe pains pains in the limb particularly the legs, and a burning sensation in the stomach. After the use of small doses of hydrochloric acid, internally and of chloroform liniment, locally for the leg pains, relief came. The patient did not return for eleven days (May 1), or about six weeks from the date of the commencement of the treatment. At this time the bloating of the hands and face had largely disappeared; the voice was less harsh and leathery in tone, and her weight 160 pounds. On April 18 she presented herself again apparently in excellent health, and expressing herself as being free from gastric or other symptoms. Her weight was now 143 pounds, a loss of 25 pounds while under treatment with thyroid gland powder.

[4] The notes of this case have been kindly prepared by Dr. Mishkin.

As the result of wide experience, to which a mite has been contributed by many different clinicians, the specific virtues of sheep's thyroid in the treatment of pure myxedema have been conclusively established. It is also the unanimous opinion of writers, that certain precautions must be taken during the administration of this remedy. The commencing dose must be small, since many individuals are remarkably susceptible to the action of this agent. Thus in case No. 1, not more than one grain daily of the thyroid gland powder could be tolerated at first. The dose was very gradually increased, until at the end of the fourth week, five grains daily were well borne, and the myxedematous condition rapidly disappeared under this small dose. This patient took three doses of 3 grains each on the same day, and after the last, symptoms of hyperthyroidation developed. There were intense headache and syncope, with a feeling of powerlessness in the legs. Rest in bed for a short period, and the use of cardiac tonics soon caused these symptoms to disappear. Subsequently, I combined with each dose of thyroid extract, gr. 1-36 of strychnin sulph., and after that no toxic effects were observed. There can be no question but that the evidences of cardiac failure constitute a really serious defect, and perhaps, the only one in the thyroid treatment. Murray[5], who first used thyroid extract in the treatment of myxedema, lost two of his early cases from cardiac failure, brought on by over-exertion. This observer strongly recommends rest in bed for a time after treatment has been instituted, with a view to avoiding cardiac and arterial strain. This may be necessary in long-standing cases, and in those in which "cardiac or vascular degeneration" are present. Ordinarily, the administration of strychnin will be found to avert any dangerous degree of cardiac failure, and this should not be omitted until a cure is effected. Only the gentlest exercise is permissible during the same period.

Case No. 2 manifested toxic symptoms (gastro-intestinal pains, profound sweats, etc.,) from the administration of small doses (gr. 1, t. i. d.) of the glycerin extract of thyroid. It is worthy of repetition that the desiccated thyroid gland could be taken by this patient in doses three times as large as the glycerin extract, and without unpleasant or toxic effects.

Not all of the symptoms that follow the administration of thyroid are due to over-dosing. As pointed out by Murray, an increase in the pulse-rate amounting to ten or twenty beats per minute simply indicates that the dose is quite large enough. In case No. 1, a most intense itching over different parts of the skin-surface occurred at intervals, and caused intolerable distress; a diminution in the size of the dose did not seem to influence the course of this symptom. The phenomena to be watched for and to be regarded as adequate reasons for stopping the remedy, are numerous, and are not sufficiently emphasized in our text-books. They are tachycardia (over 100 beats per minute), elevation of the temperature (amounting to one or more degrees), syncope, vertigo, suffusion of the face, profound prostration, intense headache, profuse sweats and gastro-intestinal disturbance. Granting that exophthalmic goiter is attributable to hyperthyroidation, if during the administration of thyroid glands symptoms of this disease, such as slight tachycardia, fine tremor, exophthalmos, heat and sweat, insomnia, restlessness, polyuria, glycosuria, or albuminuria and the like appear, the dose should be

[5] British Medical Journal, April 18, 1891.

reduced, but the remedy need not be discontinued. It is well understood, that after total disappearance of the myxedematous infiltration, the treatment may have to be continued off and on, if not continually; this is due to the fact that the thyroid is no longer functional, being as a rule atrophied.

Examples of what may be regarded as an anomalous type, that do not seem to progress to the fully developed disease with its characteristic clinical picture, are, I am certain, not infrequent. They are not to be regarded as instances of cretinism, since they develop after the age of 15 years, and few of the characteristic symptoms of myxedema are present. The face is rather flat, the skin somewhat swollen, dry, firm and inelastic. The features also lack mobility, but are not so coarse or bulky as in true myxedema. The physiognomy is dull, uninteresting and phlegmatic. There is a slight increase in the general bulk of the body, but the lips, nose and tongue are chiefly implicated. The lower jaw may be prognathic. The gait is somewhat uncertain, owing to trivial disturbance of coördination. There is some alteration of the voice with a tendency to occasional nasal explosions during speech. Thought is somewhat slow and the memory lags. Other mental phenomena are irritability of temper and an unnatural degree of suspiciousness though not so pronounced as in typical cases. Such patients are often apathetic or even melancholic and if constipation or gastric disturbance be present, a supposed chronic dyspepsia is liable to be mistaken for this complaint. There is also danger of confounding these cases with neurasthenia. Even in the presence of the above symptom-group it is not possible to make an absolete diagnosis, but the therapeutic test (improvement under thyroid feeding), if properly made, clears the doubt with reasonable certainty. I have recently observed the disappearance of a grouping of symptoms such as I have described in two cases as the result of the administration of sheep's thyroid. One of these patients had been treated for nervous dyspepsia and constipation for a long period of time.

THE TREATMENT OF EXOPHTHALMIC GOITER AND OTHER VASOMOTOR ATAXIAS WITH PREPARATIONS OF THE THYMUS GLAND AND OF THE ADRENALS.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY SOLOMON SOLIS-COHEN, M.D.

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I desire to make a brief report of a number of cases of exophthalmic goiter, and of conditions more or less closely resembling exophthalmic goiter, treated by means of extract of the thymus gland and of the suprarenal capsule. It is not my purpose in this paper to discuss at length the vexed questions of the etiology and pathology of Graves' disease, and of those conditions to which I have in a previous paper given the name of vasomotor ataxia. Nevertheless, some slight allusion to these subjects is necessary to make myself fully understood. I hold that there are almost innumerable varieties of disturbances of the cardio-vascular balance, ranging from the merest departure from the normal, to the most pronounced case of Graves' disease on the one hand, and of Raynaud's disease upon the other. The principal clinical phenomena of these conditions are disturbances of the heart's action, and central or peripheral phenomena indicative of abnormal contraction or dilatation of the vessels. The essential element is incoördination or ataxia of the circulatory mechanism, and among more or less prominent secondary symptoms are murmurs in the heart and vessels; blood losses which may range from severe pulmonary, uterine or renal hemorrhages, to slight epitaxis, hematemesis or hemoptysis, or perhaps merely petechiæ upon the skin, or the presence of blood cells revealed only to microscopic search in the urine; headache or vertigo; syncope with flushed or with pale face; local heat and redness of ears or face, usually unilateral; numbness and tingling of the extremities; discoloration of the hands and feet; subjective pulsations and "flashes" of heat and cold; excessive sweating, polyuria, and the like. These phenomena in their milder or in their severer forms are more common in women and are often associated with disturbances of menstruation; the familiar symptoms of the "change of life" belong in this category.

Among other associations having an etiologic suggestiveness are abnormity of the thyroid gland, gastric and intestinal disturbances, gout and lithemia, rheumatism and rheumatoid arthritis, hay fever, neurasthenia, hysteria and cutaneous pigmentation. The phenomena may be intermittent and capable of artificial reproduction, and we thus find as their principal exciting causes, toxins (both autogenetic and heterogenetic), temperature changes, and emotional disturbances. In most cases, of whatever origin, a distinct temperature relation can be made out, the patient feeling better or worse in summer or winter, respectively.

As a whole the phenomena are merely exaggerations, in duration and degree, of the effects of the same kinds of exciting influences upon normal individuals, or to put it another way, the same phenomena which in the cases under consideration are interpreted as evidences of disease, may occur transiently in normal individuals under similar exciting causes of greater magnitude. Thus severe cold may cause in a healthy person phenomena much like those which, excited by a minor cause, we call Raynaud's disease; and intense heat, anger, fright, sexual excitement, produce many of the phenomena we find among the symptoms of Graves' disease. Familiar illustrations of the minor varieties are the attacks of urticaria, which in some individuals result from the ingestion of foods that most persons can take with impunity, and the eruptions and edemas that mark so-called idiosyncrasies to drugs. Here, too, we find an interesting connection with angio-neurotic edema, which in some of my cases can be produced at will, in certain localities, by moderate trauma, for example as a slap on the lips; and in this as in other phases of the general subject the influence of family and of heredity is marked. In some cases the phenomena of irregular and excessive dilatation, in others those of irregular and excessive contraction of vessels predominate; in all some phenomena of both kinds are found; in all there are paroxysmal exacerbations; in some normality apparently prevailed during the interval. Whether the group of affections thus included would or would not form in rigorous nosologic classification and order, whatever the exact mechanism of the symptoms or the immediate exciting influence, the fundamental cause is apparently a

constitutional vice of nutitrition, an instability in the nervous centers governing the cardio-vascular balance; and we are led to direct our therapeutic measures accordingly.

Confining our attention now to those cases which present phenomena chiefly referable to vascular dilatation, we find that the most severe of these have for their usual concomitants, enlargement of the thyroid gland and protrusion of the eye-balls. In nearly every case tremor is associated with the tachycardia, exophthalmus and goiter, which Graves and Basedow described as the triad, characterizing the affection to which their names have been given; and in all of the cases which I have studied since 1892, I have found dermographism, factitious urticaria, and the peculiar crescentic markings upon the nails, to which I called attention in my first paper on this subject.

The statistics of treatment in exophthalmic goiter are confusing to the student. Some cases recover without treatment, some fail to recover under any treatment, and many cases of recovery or great improvement are reported from the most varied forms of treatment. In order to be made valuable the recorded statistics need close analysis as to many facts, some of which are not commonly observed. We should include not only heredity, age, sex and apparent exciting causes, but the physical and mental temperament of the individual, and such other relations of morbidity and susceptibility to therapeutic measures, as may be needed to give a complete picture. Let statistics be what they may, few among those who have had large experience with Graves' disease will be content to trust to spontaneous recovery, or will fail to draw a conclusion of cause and effect between the treatment instituted and the results following.

It has been my fortune to have had a comparatively large number of cases of exophthalmic goiter under observation, and I have seen recovery and partial recovery from various methods of treatment, which have, however, agreed in that they were devoted to the removal of excretion and intestinal antisepsis, of toxins that might be circulating in the blood; to the soothing of the excited nervous system by rest; and to the restoration of cardio-vascular tone by appropriate medication or other remedial influence, *i. e.*, galvanism or the application of cold.

In common with many other observers, I was led to the use of thyroid extract experimentally, when that substance was first introduced into practical medicine by British observers, and contrary to the experience of most others, and to my own experience in other cases, one of my patients so improved that he refused to remain longer in the hospital. He was under treatment from January to March, 1893.

Dr. David Owen of Manchester, published the report of a case in which wonderful improvement followed the supposed ingestion of thyroid gland; but further investigation showed that the butcher had been supplying his patient not with thyroid gland but with thymus. In my case the preparation was furnished by Messrs Parke, Davis & Co., while they were still experimenting as to methods, and before they had placed it on the market, and they assured me that no such mistake had occurred. Patton's partial recovery, therefore, remains unexplained.

I should also mention in this connection, the good effect of thyroid extract in a case of marked vasomotor ataxia, characterized by right or left hemicrania, with temporary numbness and paresis of the opposite arm, and great pallor of the face, occurring at first spontaneously, but now only after certain indiscretions in meat or drink, in a man whose mother had had exophthalmic goiter. The continuous administration of a small dose of thyroid extract will ensure complete absence of attacks; a large dose will cause headache and vertigo, with opposite symptoms, namely flushing and warmth of the face; while nitroglycerin or amyl nitrite is required in the paroxysm. As a rule thyroid extract benefits that group of patients who feel best during the summer, and injures those whose worst symptoms occur in warm weather.

From Owen's experience with thymus; from almost universal experience that thyroid is harmful to patients with Graves' disease, exaggerating the symptoms; from the fact that tachycardia and vascular unbalance, even to fatal issue, may be produced from incautious use of thyroid in myxedema; from the frequent persistence of the thymus in akromegaly, indicating some yet unexplained reciprocal relation between this gland and the thyroid, I was led to the deliberate administration of thymus to patients with exophthalmic goiter and minor degrees of vasomotor ataxia.

I have so treated twelve cases of pronounced Graves' disease. I present a few cases in which the improvement has been remarkably great. In Mrs. B. (May 5, 1896) the goiter has almost entirely disappeared, the exophthalmus is scarcely perceptiple, the heart is quiet, concomitant rheumatoid arthritis has much improved, pain being almost gone, and the nervousness and trembling, which was her principal complaint, is entirely gone. (See case of Mrs. McD.)

In Mrs. McE. (Aug. 7, 1895) the goiter has been reduced about two-thirds, the Addisonian color has been much lightened, the nervousness and sleeplessness has disappeared. In a third case, Miss L., a patient referred by my friend and colleague Dr. S. D. Risley, the improvement is equally great but less striking; inasmuch as the goiter never was very large nor the exophthalmus prominent. Tachycardia and nervousness have disappeared and general nutrition has been greatly benefited. In a fourth case, Mrs. McD., quite severe, which I saw in consultation with Dr. Albert M. Eaton of this city, there were many interesting diagnostic and etiologic points. After an operation for ovarian cyst, followed by sepsis, the patient complained of severe cardiac pain and dyspnea, and there was observed excessive rapidity of pulse. At the time I saw her she had been confined to her bed for some months; goiter and exophthalmus were evident. Thymus extract was presented and the patient was so far reduced after treatment that she was able to follow her accustomed duties. A relapse suddenly followed and it was found that the druggist had given thyroid instead of thymus. I may add that Mrs. E. experienced a similar relapse from the same cause, the goiter enlarging and becoming quite hard and tense like a cyst.

Upon return to thymus there was renewed improvement. Although the dose given has been throughout too small, the patient refusing to take the quantity prescribed, Dr. Eaton tells me that the goiter is almost gone, the dyspnea entirely gone, the heart quiet and regular except on unusual exertion, and the patient able to go shopping.

In two other cases of genuine Graves' disease, and in some twenty or thirty cases of minor varieties of vasomotor ataxia, of the relaxing variety, I have seen equally good results. Dr. Hector Mackenzie recently reported twenty cases of exophthalmic goiter treated with thymus without benefit.

More recently, the physiologic experiments showing that in the adrenal secretion there exists a natural raiser of blood pressure, probably active by constriction of the vessels; together with the fact that Addisonian pigmentation occurs in some cases of Graves' disease; and that exceptional cases are met with in which exophthalmic goiter and Addison's disease are alternate diagnoses, suggested the use of adrenal extract in the treatment of this affection. Since I instituted it, at the Philadelphia Polyclinic, I have seen publications of similar observations elsewhere. Two patients disappeared from observation before any conclusion could be drawn, except that they could take remedy without ill effect. I therefore reverted to an old patient who would remain under observation. I refer to Mrs. B., whom I have already shown as an example of the good results of thymus treatment. She had been absent from the clinic for six months, during which time she had been without medicine. She returned complaining of a recent return of nervousness and of pain in the finger joints. We placed her under treatment with adrenal extract, which she is still taking, and, she thinks, with equally good effect in maintaining and even increasing her improvement. The case lacks conclusiveness because of the great gain previously made under thymus treatment.

In the case of Mrs. McD. before reported, suprarenal dosing failed to give good results, but increased the headache and apparently caused increased excretion of uric acid (brick dust sediment appearing), bloody sputum and vertigo. I present two other patients, Mr. S. and Mrs. M., both of which have been treated only with suprarenal extract. They were never marked cases as to goiter or exophthalmus. Mrs. M. (Jan. 8, 1897), had a decided tremor which has been much reduced, while the cardio-vascular and neurotic phenomena have greatly improved in both.

Miss K. is a marked case. Her improvement is chiefly as to nervous and vascular phenomena and general nutrition. The pulse is quieter, the breathlessness relieved. She says that the goiter is smaller and we are all sure that the exophthalmus is much less, but unfortunately accurate measurement was not made when she first appeared.

Mr. H. is a patient presented for the sake of fairness; he appeared at the clinic the same day as Mrs. K., and was just as marked a case. We presented adrenals and he disappeared until this week; has much improved, but has been for the most part without treatment.

Miss F. is presented to show the effect of a different remedy—picrotoxin. Her improvement is equally great.

From the clinical observations, including sphygmographic tracings made on the various cases I have thus far studied, I conclude that thymus extract will in many cases of exophthalmic goiter, improve nutrition, mitigate nervous disturbances, reduce exophthalmus, greatly reduce goiter, and moderately quiet the heart and restore vascular tone, completely accomplishing this in milder cases; while adrenal extract seems to have greater influence upon the circulation and less effect upon the thyroid and ocular symptoms. We are making studies upon the blood and secretions, which are not sufficiently advanced for publication. I do not believe that either of these remedies or any other remedy removes the fundamental, constitutional, idiosyncratic instability of the toxic mechanism of the circulation; but I do believe that they are competent in the one case—thymus—chiefly by an antitoxic action, to counteract the exciting influences, and in the other case—adrenal—chiefly by opposing action upon the circulation to neutralize the effect of those influences. Probably both share both these actions in some degree, and I should expect the best results to follow their combined administration.

THE IMPORTANCE OF THE HABIT OF PROGNOSIS IN THE DEVELOPMENT OF THE INDIVIDUAL PHYSICIAN.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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It is the duty of a physician to himself and to his patients, not only to be well informed, but it is also to look out for new methods that tend to the best possible training for his work. Habits, good and bad, are the relentless masters of our lives and actions. Powerful as they are for evil they are equally potent for good if seized upon, developed and directed. Habits of mind and thought are just as much habits as those pertaining to the physical nature.

Now there is a particular attitude in approaching a medical case that would seem, more than almost any other, to lead to sound judgments and judicious management, the attitude that takes account of not only present conditions, but discounts them by the probable future. It not only considers what the course of disease will be, if treated, but its course if untreated or treated in a different way. This we may call the habit of prognosis, and upon it must be based all thoroughly judicious and honest therapeutics.

Medicine is a science and at the same time an art. Indeed it is a combination of many sciences and many arts. Thus there is the science of pathology, the science of chemistry, the art of treatment, the art of feeding, the science of diagnosis and the art of prognosis. The power of prognosis is at the same time an acquirement and a gift. Like all other faculties it is improved by exercise and increased by cultivation. Its basis, though largely personal experience, is equally found in a knowledge of medical literature. Thus the experience of a long lifetime may not afford as good a basis for prognosis in a particular case as an hour intelligently spent in a medical library. The faculty is best cultivated by the exercise of the habit of forming, with care and study, the most definite possible prognosis in every case that comes under observation, and then faithfully promulgating it to those who have a right to such an opinion. The first step in prognosis is accurate diagnosis, not the mere naming of disease so that it may fall within the list of diseases such as are found in the index of a text-book of medicine, but the placing of a case in a particular group of a particular variety of the disease. Then, by recalling from per-

sonal experience and searching literature, as many parallel cases as possible are summoned as witnesses; then the mathematical theory of chances and probabilities is brought to bear and the conclusion is reached. It seems strange, at first sight, that in art so varied as medicine, mathematics should have any possible bearing, and yet in the almost parallel science of life insurance, mathematics has found one of its most useful applications. The life insurance company can not say with certainty that a certain man of 40 years of age will live so many years, but it can say with very close certainty of a particular group of ten thousand men, that so many will be alive and so many will be dead in ten years. It is the same way with the prognosis of particular classes of disease. If we can assemble, from personal experience and experience as recorded in literature, a group of one hundred of whom ninety have survived a year, we can give a prognosis in the particular case, all attending circumstances being carefully considered, that the chances of survival for a year are nine out of the ten; in the same way is the prognosis of the time of recovery in particular cases. If we have summoned to our aid, truthfully, a group of parallel cases, and have intelligently discounted particular surrounding circumstances, we can give a prognosis as to the time of recovery which will be correct six times out of seven; seven times out of eight; eight times out of nine, or nine times out of ten, according to the breadth of our knowledge, and the accuracy of our observation.

The value of the constant habit of prognosis can not but be very great to the individual physician. It will give him encouragement and hope in many a desperate case, and save him from undue disappointment when the inevitable laws of nature have run their relentless course. He who has mastered the art of prognosis stands, as it were, on the summit of a mountain where he can see beyond his fellows who have not climbed up the steep and laborious path. Observe the calm philosophy of this man, who with his eye ever on the future, neither urges rash measures nor advocates undue delay, and who is not carried away by the promises of false prophets. He is not deceived by the bright coloring given to the landscape, by the passing meteor, into the belief that the force of all nature has been permanently changed.

The ideal opportunity for the study of therapeutics would be by the treatment of exactly parallel cases by several methods, and their comparison at the same time with cases untreated and pursuing the natural course of the disease. These conditions are only found in rare instances and in large hospitals. Usually, if cases are treated by various methods, it is at different times and the mind pictures of older cases are dim and indistinct. The untreated case is hardly to be found. It is in supplying the place of untreated cases that the development of the habit of prognosis finds its most important place. By careful analysis of the case in hand, by summoning to one's use the records of previous cases accurately observed, by discounting the treatment of one by the treatment of another, and observing the course and outcome under various conditions, one may construct an ideal case similar to the one in hand, but with its history continued into the future. This ideal case supplies a prognosis by which to be guided in the selection of therapeutic measures, the judgment of their efficacy and the expectation as to cure.

Prognosis is often enough modified by the wealth or poverty of the patient, by his character, by his hopefulness or depression, and by a thousand other things that arise in the individual case, but the discussion of more exact methods of prognosis must find a place elsewhere. What would be emphasized is this, that every physician should form the habit of constructing a well-founded judgment as to the future course of any case of which he seriously undertakes the care. With this judgment he should constantly compare the course of this case while under treatment, and honestly acknowlege the futility of useless therapeutics as well as the modifying influence of really valuable measures.

The remark is often made that prognosis is not worth while, that it does not influence the outcome of the case, that a wrong prognosis is apt to bring disrepute, and that it is better to treat the case from day to day, and leave the result with Providence. This is the reasoning of those who take a superficial, and as it were, a symptomatic view of disease; is the reasoning begotten of intellectual laziness, timidity, and self-conceit. How much more moral courage does the physician exhibit, who throwing his whole intellectual acumen into a case, carefully studies all the circumstances, carefully summons to his aid his own experience, and that of others, and then having given the results of his very best work, is willing to stake his reputation on the result. Even from a lower standpoint, that of professional reputation and success, this in the long run pays best. The greatest physicians in all times have made errors, but the consultants, the men whose counsel is sought in time of great danger, have been men of strong characteristics, who were able and willing to form an opinion and to stand faithfully by that opinion when formed. The mistakes of such men are apt to be condoned while their successes become a glory to their profession, which obscure practitioners are proud to promulgate.

REPORT ON THE TREATMENT OF PULMONARY TUBERCULOSIS.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4.

BY DELANCEY ROCHESTER, M.D.

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This report covers in most of the cases a period of about eight months, in some of the cases a period of nearly two years.

The various remedies, upon the use of which the report is made, are Edson's aseptolin, Paquin's tubercle antitoxin and Vaughan's nuclein. In all cases where the stomach does not rebel, cod liver oil was also used. Alcoholic stimulants have not been used, except as temporarily called for. Locally, inhalations, sprays and insufflations consisting of iodoform in ether and in powder, menthol in albolene, essence of peppermint and a mixture of acetanilid, carbolic acid and glycerite of tar according to the formula of Dr. R. P. Lincoln of New York City, have been used. In all cases reported the tubercle bacillus was found in the sputum.

Following is the detailed statement of cases treated by aseptolin (which is a solution containing 3 per cent. of absolute phenol and 0.01 per cent. of pilocarpin-phenyl-hydroxid). This is in no sense an antitoxin but is designed, according to Dr. Edson's

statement, "to greatly reinforce the natural antiseptic power of the blood."

Case 1.—D. N., male, age 47, nativity United States.

May 4, 1896. Previous history.—Has been running down for nearly a year; coughing and raising considerable; vomiting frequently; having irregular chills followed by high fever and night sweats; weight at this date 119 pounds. Tubercular infiltration of right upper lobe; aseptolin treatment begun.

May 21. Since the treatment began patient feels better, appetite has improved, no chills or vomiting, temperature has not gone above 100 F., no night sweats, weight 121 pounds. Pulmonary condition unchanged. Supply of aseptolin gave out and treatment was omitted until June 19 when general and local conditions were not different from previous record. Weight 124 pounds.

July 16. During last month there have occurred two hemoptyses and treatment was omitted for five to seven days each time. The upper lobe of right lung shows distinct sign of softening, and cough and expectoration have greatly increased in amount, but temperature has not gone above 98.5; there have been no chills, sweats or vomiting and the weight is 129 pounds.

August 13. No change in patient's condition except that he has lost appetite, feels weak and dispirited and physical examination reveals extension of the area of softening. Weight 131 pounds.

August 23. Profuse hemorrhage; weak and discouraged; weight 130½ pounds.

October 2. Since last record patient has had two more hemorrhages, not so severe. and none since September 4; feels a little stronger and in better spirits. Temperature has reached 100 several times. Pulmonary condition not materially changed. Weight 131 pounds.

October 20. During last three weeks patient has felt worse, there has been increase in cough and expectoration and there has been vomiting (caused generally by the iodoform spray). Physical examination reveals infiltration in *left* upper lobe and distinct cavity in right upper lobe. Weight 129 pounds.

December 1. Patient's general condition has improved somewhat, vomiting has stopped, cough is not so distressing, but temperature has ranged rather above 100, reaching 101 several times. Physical examination shows steady advance of the tubercular process in both lungs. Weight 129¼ pounds. Patient complained bitterly of the pain of the injections and treatment was stopped.

Case 2.—H. K., male, aged 37, nativity United States. Aseptolin.

July 15, 1896. Previous history.—For eighteen months there has been progressively increasing anemia, and malaise, marked anorexia, night sweats and occasional hemoptyses, considerable dyspnea, lack of sleep and depression of spirits. There was consolidation of upper left lobe and some infiltration throughout the rest of the left lung. The temperature frequently reached 101 and sometimes fell as low as 97. The respirations ranged in the neighborhood of 30 and the pulse from 80 to 100. The weight record of this case for the first three months was lost. Cough was very troublesome, almost continuous, and there was a large amount of sputum raised.

August 13. During the last month there has been great improvement in all respects; appetite better; sleeps well; cough and expectoration decreased; dyspnea continues; no night sweats since July 18. Temperature has not gone above 99.2.

September 12. Condition has remained about the same.

October 13. Improvement continues in all respects, except that cough and expectoration have increased and there is evidence, on physical examination, of infiltration at right apex in addition to that existing in left lung which has not changed. Weight 130 pounds.

November 10. Improvement continues. Weight 134½ pounds.

December 8. Improvement continues. Weight 138 pounds; cough and sputum diminishing.

January 12, 1897. Continued improvement in all respects. Weight 142 pounds. Aseptolin stopped on account of pain of injections.

February 2. Not quite so well. Weight 139½ pounds.

Case 3.—F. S., male, age 31, nativity United States. Aseptolin.

May 4, 1896. Previous history.—For six months gradual failure in strength and health, anorexia, anemia, marked cough, profuse expectoration, afternoon fever, profuse night sweats. Tubercular infiltration of upper and middle lobes of right lung. Weight 92 pounds. Aseptolin begun.

May 21. Appetite improved, temperature lower (100.8 highest), no night sweats. Cough still severe and sputum still profuse. Marked dyspnea. Weight 92 pounds. Aseptolin omitted until

June 19. During this month improvement continued and cough became less troublesome. Pulmonary condition not changed. Weight 98 pounds.

August 23. During last month there has been falling off of appetite and disappearance of previous sense of improvement. Cough and expectoration have again increased and the dyspnea is more marked. There has been an extension of the diseased process downward to the lower lobe of right lung. Weight 100 pounds.

September 2. Aseptolin omitted on account of soreness of abdomen. Temperature has again increased and patient feels weak and dispirited, suffers greatly from dyspnea and complains of pain in left chest. Weight 101 pounds.

October 2. Aseptolin resumed. Patient's general condition not materially changed except that soreness in abdominal walls is less. There is evidence of infiltration of entire right lung and of left apex. Weight 98 pounds.

November 8. Patient has gradually and steadily failed in all respects, general and local. There is infiltration of entire right lung and cavity in left upper lobe surrounded by zone of breaking down lung. Weight 91 pounds. Aseptolin stopped.

Case 4.—T. D., male, native of Ireland. Aseptolin.

May 2, 1896. Sickness dates back six years. During this time there have been periods of long quiescence with occasional outbursts of cough, fever, etc. These have gradually increased in frequency. Patient is anemic and has no appetite, feels very weak, suffers from great dyspnea. There is evidence of consolidation of upper left lobe, and scattered areas of broncho-pneumonia through rest of left lung and slight bronchitis in upper right. Coughs a great deal with not very much sputum. Temperature not above 100, pulse 100, respiration about 30, weight 130 pounds.

May 21. During the last three weeks temperature has not gone above 99, and night sweats have ceased. Otherwise, no change in patient's condition. Weight 128 pounds. Aseptolin omitted until

June 19. During last month no change in patient's condition. Weight 126½ pounds.

July 24. Some general improvement, sleeps well, appetite good, no sweats, cough and expectoration less. Dyspnea marked. Weight 126 pounds.

August 13. General condition not changed. Weight 122½ pounds.

October 13. During last two months there has been no material change in general condition, but the disease in lungs has progressed so that there is now cavity in upper left lobe and infiltration in lower left, with bronchitis in right lung. Weight 123 pounds. Aseptolin stopped on account of pain of injection.

December 8. No change in general condition nor in pulmonary condition. Weight 119 pounds.

Case 5.—H. G., male, age 54, nativity United States. Aseptolin.

May 3, 1896. Previous history.—For a year patient has had cough, with slight expectoration, frequent asthmatic attacks, very slight fever occasionally, no night sweats. Has poor appetite, is anemic, sleeps poorly, feels weak and debilitated. Has general bronchitis and emphysema and infiltration of right upper lobe and left apex. Temperature ranges from 96.5 to 98.5, pulse 60 to 90, and respiration 20 to 30. Weight 145 pounds. Aseptolin begun.

May 21. No change in condition except that he coughs and raises a great deal now. Weight 149 pounds. Aseptolin omitted until

June 19. No change. Weight 150 pounds.

July 24. During last month sleeps well; appetite not so good, does not feel as well.

August 23. No change except that cough and expectoration are increasing. Dyspnea somewhat relieved by quebracho. Weight 144½ pounds.

September 1. No change. Weight 146 pounds. Aseptolin stopped on account of soreness of abdomen.

October 6. During the last month patient has felt better, appetite improved, dyspnea not so marked, but cough and expectoration continue to increase. Weight 143½ pounds. Aseptolin resumed

November 17. During last six weeks patient has become worse in all respects. The local conditions have not improved. The cough continues severe and the expectoration very profuse. Temperature has reached 100 on several occasions, and once fell to 96. Weight 138 pounds, Aseptolin stopped. On December 1 weight had fallen to 135½ pounds.

February 2. Patient has improved in all respects during last two months. Weight 139½ pounds.

Case 6—J. M., male, age 50, English parentage. Aseptolin.

August 1. Previous history.—Has had cough and occasional diarrhea for one year. In December, 1895, had very severe cough. Since then has lost forty pounds in weight, coughs considerable, sputum thick and tenacious and considerable in quantity. Temperature does not go above 100. During last two weeks has suffered from night sweats. The left apex and the right upper lobe are infiltrated. Weight 150 pounds. Aseptolin begun.

August 23. Pulse stronger, no night sweats, but appetite is poor and he is kept awake by coughing. Has developed slight laryngitis. Weight 154½ pounds.

September 12. During last three weeks has had some diarrhea; laryngitis has improved. Developed albuminuria with markedly diminished urine. Aseptolin stopped. Weight 152 pounds.

October 9. After the first diminution in the amount of urine secreted, there came a marked increase in amount of urine, and although the albuminuria remained, the polyuria became extreme; during last two months of his life patient passed from 2000 to 5000 c.c. of urine in twenty-four hours, containing from 20 to 50 gm. of urea, though of low sp. gr., and containing albumin in abundance, and some casts. Weight 157 pounds. December 19, he died, having been comatose for twenty-four hours before death. During last two weeks of his life he had two attacks of severe gastritis and developed corneal ulcers in both eyes. His weight two weeks before death was 136½ pounds. No autopsy.

Case 7.—R. B., male, age 35, nativity United States. Aseptolin.

August 12, 1896.—Previous history.—For six or seven months has suffered from cough and expectoration, chills, fever and night sweats. Loss of appetite, loss of weight, great weakness, marked dyspnea, respirations have ranged between 30 and 40, pulse 80 to 120 and temperature 97 to 102 degrees. There is infiltration of left apex, infiltration and softening in upper lobe of right lung with bronchitis in middle right lobe. Cough and expectoration slight. Weight 100 pounds. Aseptolin begun.

September 12. No material change except that night sweats have ceased and temperature is ranging nearly a degree lower at its maximum, cough and expectoration increasing.

October 13. During last month there has been a steady decline in all respects, except that the temperature has ranged lower and the night sweats have not returned. Patient has been troubled greatly with sleeplessness and nightmare. The diseased processes in the lungs have progressed quite rapidly and the cough and expectoration increased in a marked degree. Weight 91 pounds. October 16, patient died.

In addition to these seven tabulated cases, two other cases were treated with aseptolin although they were rapidly advancing in tubercular destruction of the lungs. In neither case was any benefit observed from the treatment, either locally or generally. The treatment was stopped after two months. Both cases died. Except in the cases that died the treatment was continued from four to six months. Of the nine cases treated, in seven the night sweats ceased entirely and the temperature range was lower during treatment than before the treatment was begun; in one (case No. 2), there was a gain in weight, and improvement in all general symptoms, appetite increased, sweats ceased, temperature fell to normal or half degree above, but the local conditions as revealed by physical examination did not change though the cough and expectoration were much lessened; in one other (case No. 1), there was gain in weight for four months, sweats ceased, appetite improved, temperature did not range above 100 degrees F. but the local changes in the lungs progressed, cough and expectoration increased, there were several hemorrhages and during last two months patient began to lose in weight, appetite failed and temperature began to range higher.

In all of the other cases there was progressive loss in weight, marked progress in the local disease, and no improvement in any symptoms except in the cessation of the night sweats and the somewhat lower range of temperature.

Of the nine cases treated four died, two from two to three months after treatment had been stopped, one during treatment and one, I think, because of the treatment. This case (No. 6), deserves especial mention. In this case as in all others, careful examination of the twenty-four hours' excretion of urine was made before treatment was begun. The kidneys were in normal condition. (The urine in all cases was examined every day.) Treatment in this case was begun August 1. On September 12 albuminuria and almost complete suppression of urine occurred. Treatment was immediately stopped. Patient had gained four and one-half pounds during first three weeks of treatment and lost two and one-half during last three weeks. During the month following the stopping of treatment he gained five pounds, although the albuminuria persisted and gradually increased. About October 1, three weeks after aseptolin had been stopped, in addition to the albuminuria he developed a marked polyuria which lasted until his death, which occurred December 19. The amount of urine voided daily during the last two months of his life was from 2000 to 5000 c.c., containing from 20 to 50 gm. of urea and a large amount of albumin and hyaline, granular and epithelial casts in abundance. During the last two weeks of life he was confined to bed, had three attacks of severe gastritis and developed corneal ulcers in both eyes. He died in a state of coma. Autopsy was not secured.

In no case can I report a cure. In judging of the value of aseptolin in these cases we must bear in mind the fact, that the treatment was begun in the early summer and continued through the summer and somewhat into autumn and early winter; that the improvement in those cases in which improvement was noted, took place during the summer, while the weather was such as permitted out-of-door life, but that when the weather grew more inclement and out-of-door life was interfered with, the improvement did not continue. The one thing that impressed me as of value in the use of aseptolin was that in all cases the night sweats were promptly stopped and did not recur. In most cases also, the range of temperature was lowered. As these same results can be obtained by other measures which do not carry with them the possibility of producing an albuminuria and even a nephritis and death, I question whether the use of so dangerous a remedy is justifiable.

The next series of cases I have to report is a series of cases treated with Paquin's tubercle antitoxin.

Case 1.—D. M. was Case 1 of aseptolin series. Aseptolin treatment had been stopped two weeks and patient gained in appetite, ability to sleep, and slightly in weight. Temperature ranged from 98 to 100.5 degrees, pulse 80 to 100, respiration 20 to 28. Weight 130½ pounds.

December 12, 1896. Tubercle antitoxin begun; there is infiltration in upper left, cavity in upper right.

January 4, 1897. Patient feels very badly, has steadily gone downward since treatment was begun, great pain was produced by the injection; they were followed by a marked dermatitis and by swelling of left axillary glands, headache, gastric pain, anorexia, diarrhea, pain and stiffness in limbs. Temperature ranged during this month from 97 to 102.5 degrees, pulse 80 to 110, respiration 22 to 28. Infiltration in upper left remained inactive but there was marked increase in softening about cavity in upper right. Cough and sputum greatly increased. Weight 129½ pounds. Treatment stopped.

January 27. Headache and ache in bones have disappeared, sleeps well and feels better. Weight 126½ pounds.

Case 2.—F. S. This case had also been an aseptolin (case No. 3), and had not improved since aseptolin stopped.

December 14, 1896, had held his own in weight in spite of three small hemorrhages. Temperature has varied between 98 and 100, pulse between 88 and 100, respiration 20 to 24, cough and

sputum have diminished, appetite is good, sleeps well, no night sweats, weight 91½ pounds. Infiltration of left apex and of right upper lobe with bronchitis in right middle lobe. Tubercle antitoxin begun.

January 4, 1897. During the last month patient has failed in all respects; shortly after serum treatment was begun, he began vomiting severely, and has had one severe hemorrhage. Cough and sputum have both increased. Injection set up dermatitis and caused swelling of axillary glands; the infiltration has proceeded downward from left apex into entire upper left lobe, softening has begun in upper right and infiltration has progressed into middle right. Temperature has ranged from 97 to 101.4 degrees; pulse 80 to 120, respiration 28 to 40, weight 88¾ pounds. Patient is distinctly worse in all respects. Treatment stopped.

Case 3.—T. D. This case also has been on aseptolin (case No. 4), and had not improved. Aseptolin stopped October 13. Since then patient has lost three pounds in weight but has held his own in other respects. Appetite is fair, sleeps well, feels pretty well, coughs and raises considerable. Temperature 98 to 100 degrees, pulse 70 to 100, respiration 20 to 30. There is infiltration in upper left and in middle right, and cavity in upper right. Tubercle antitoxin begun Dec. 14, 1896,

January 5, 1897. During last month patient has lost ground in all points; feels very badly, appetite gone, sleeps poorly, severe and continuous headache, dermatitis marked, cough and expectoration markedly increased; condition of the left lung remains the same, but there has been marked increase in the softening about cavity in right lung. Temperature 97 to 100 degrees, pulse 80 to 110, respiration 20 to 30. Treatment stopped.

February 2. Patient continued to lose weight for three weeks after treatment stopped. Since then has gained a little. Headache ceased; feels, sleeps and eats better. Cough not changed.

Case 4.—M. R., male, age 34, native of Ireland. Tubercle antitoxin. Jan. 8, 1897. Previous history.—Negative until in July 1896, when he began to have a slight cough, loss in weight and strength, and suffer from pain in side and chest. Is anemic and has had occasional night sweats. Temperature has ranged from 99 to 101 degrees, pulse 100 to 110, respiration 20 to 30. There is infiltration of left upper lobe as far down as the level of the second rib in front, and as far as the spine of the scapula behind. Considerable cough and expectoration. Weight 120 pounds. Antitoxin treatment begun.

February 2. Patient felt better for first two weeks, and gained two pounds in weight which he lost in the third week, but gained one back in next week. The pain in his chest disappeared in first two weeks, but returned with greater severity during last three weeks; he also developed pain in his left hip and his stomach. During last three weeks has vomited nearly every day, his appetite has failed and the cough and expectoration have increased. His temperature has ranged from 98 to 102 degrees, pulse 90 to 120, respiration 22 to 34; he has had three severe night sweats. Softening has developed in left upper lobe and there has been some extension of disease downward. There has been no dermatitis or swelling of lymph gands. Weight 121 pounds. Treatment stopped.

Case 5.—P. R., male age 54, native of Ireland. Tubercle antitoxin. Previous history: Pneumonia five years ago; cough for two years; hemorrhage one year ago. In September 1896, had another hemorrhage and began to run down in weight and strength. Entered hospital Oct. 14, 1896. Fair appetite, sleep poor, night sweats, occasional diarrhea. Temperature 97.5 to 98.8 degrees, pulse 90 to 100, respiration 24 to 32. Cough and expectoration considerable, sputum often blood tinged. Scattered areas of broncho-pneumonia in both lungs, together with considerable emphysema; cavity in upper right lobe. Weight 125 pounds.

December 12, 1896. Under hygienic measures, good diet and creasote, patient has gained nine pounds in weight, hemorrhages have ceased, night sweats less severe and less frequent. Temperature 98 to 98.5 degrees, pulse 90 to 100, respiration 24 to 30. Areas of broncho-pneumonia have materially diminished, otherwise pulmonary condition is the same. Weight 134 pounds. Tubercle antitoxin begun.

January 4, 1897. From the time injections were begun patient began to feel badly, aching and numbness in limbs and back, headache, bones ache with return of night sweats in great severity, cough and sputum increased greatly in amount and hemorrhages again began. Temperature 97 to 100 degrees, pulse 80 to 120, respiration 24 to 36. Areas of broncho-pneumonia again increased and there developed considerable softening about cavity. Weight 129 pounds. Treatment stopped.

From this time on patient continued to grow worse in all respects; hemorrhages continued, sweats, fever and broncho-pneumonia increased and softening extended; patient finally died March 1, 1897.

I have three other cases treated with tubercle antitoxin to report. One Miss B., age 17, American of German descent. This case I first saw in September, 1896. She at that time was having high fever in the afternoon, night sweats, severe cough, considerable expectoration, poor appetite and occasional diarrhea. She was not weighed. I put her upon Vaughan's 1 per cent. solution of yeast nuclein. She did well upon it, appetite improving, cough diminishing and sweats becoming much less frequent and fever also subsiding to a marked degree. The local condition, which at first showed cavity in right upper lobe, infiltration in rest of right lung and in left upper lobe improved to a considerable degree, the lower lobe of right clearing up almost entirely, the cavity in upper right remaining, but apparently not extending, the infiltration in upper left remaining about the same.

In spite of this improvement I foolishly changed to the antitoxin in December, beginning the injections on December 10. The injections of tubercle antitoxin were very painful, a marked dermatitis occurred and swelling of the axillary lymph nodes. Her general health suffered greatly. The afternoon fever returned, the sweats again became marked, appetite diminished and after about three weeks' treatment the girl declined further treatment by injection of any kind, even declining to go back to the use of nuclein. The local condition took a new start in progress of disease, the cavity on the right side enlarged, the left upper lobe also began to break down and areas of broncho-pneumonia showed themselves in lower lobes of both lungs.

The cases so far reported were undoubtedly cases of mixed infection and it may well be said that good results from a specific antitoxin should not be looked for in such cases. The next two cases were apparently pure tuberculosis. The first, David D., a young man 20 years of age, tubercular family history in grandparent and aunt, consulted me first Dec. 13, 1896, on account of cough. Physical examination of the chest revealed nothing, but chest tending to pigeon shape and poor development. Examination of throat showed enlarged tonsils, especially the right one, and a reddening of the vocal bands with some edema of false cords. He was referred to a throat specialist who treated the laryngeal condition and a diseased nasal condition without much relief to cough. Patient also began to vomit considerably at this time after severe attacks of coughing. Almost no expectoration, the little that was brought up being mostly glairy mucus not containing tubercule bacilli. On December 31 I amputated the right tonsil. For nearly a week after this the cough was much better. It then began again. His voice became quite hoarse and at times he could only speak in a whisper. Examination of the larynx on Jan. 26, 1897, revealed tubercular infiltration of the larynx—ulceration of the free margin and superior surfaces of both vocal bands over the anterior halves of the membranous portions—swelling of the arytenoids prevents complete closure of glottis; about this same time physical examination revealed some infiltration of right apex but no softening. Not until a week later were tubercle bacilli found in the sputum, which remained very scanty. On January 26 began injection of Paquin's tubercle antitoxin, and gave them daily for thirty-two days, patient growing steadily worse and the injections producing such severe

pain, lasting for from four to eight hours, that the patient dreaded the coming of another day. The local condition of the lung did not improve, on the contrary, began to show distinct signs of breaking down. Patient gained three pounds for two weeks and then lost nearly three. On February 26 the injections were stopped, certainly having done no good and possibly having been productive of harm.

The last case of those treated with tubercule antitoxin was a man from whom a tubercular testicle had been removed two months before. This case presented no evidence of pulmonary tuberculosis, but presented enormously enlarged lymph nodes in the groins and extending into the pelvis and some distance into the abdominal cavity. He was put on the serum injections on Dec. 12, 1896. He suffered no inconvenience from them and gained in weight and strength. The injections were continued until April 22, 1897, when he left the hospital much improved in general health, apparently not injured by the injections, though at one time they had to be omitted on account of soreness produced, but were begun again in a week. There was, however no change observed in the size or contour of the glands already involved, but on the other hand there was no further extension and involvement of other glands or organs.

The conclusions to which I have come in regard to Paquin's tubercle antitoxin are that in cases of phthisis that are at all advanced it is of no value, and that in the one case of almost pure tuberculosis of larynx and upper lobe in which I used it, it was worse than useless, not having stayed the disease and having produced great physical suffering; that in the case of gland tuberculosis it has apparently done no harm and may yet be of value; that in all cases, with the exception of the last, the pain produced by the injection and the unpleasant after-results in the way of dermatitis and glandular swellings would almost, if indeed not entirely, prohibit its use.

The next series of cases to which I wish to call your attention gives brighter outlook as regards results from treatment.

In 1894 Dr. Victor C. Vaughan of Ann Arbor sent some of the early production of his yeast nuclein to Dr. Chas. G. Stockton of Buffalo, with whom I have the honor to be associated in one of our hospitals. Since that time Dr. Stockton and I have used nuclein on a number of cases of tuberculosis and other infectious diseases. I have yet failed to see a case in which it did not do good. I have seen many in which it has not effected a cure. I have seen some in which it has effected a cure. In all there has been at least temporary improvement.

Case 1.—The case of Miss C. I have already mentioned as showing marked improvement under the 1 per cent. nuclein. She had advanced as far as 3 c.c. at a dose, when, to my great regret, I changed to the tubercle antitoxin and she afterward refused treatment.

Case 2.—Mrs. W. F. H., age 57; nativity, United States. Nuclein. Tubercular family history; has coughed more or less for twelve or fifteen years. First came under observation in June, 1894. Suffering with gastric distress after eating; this has troubled her for the last eight years. Case is emaciated and has marked enteroptosis. The study of stomach contents shows slight diminution of hydrochloric acid, impaired motion and impaired absorption, large amount of lactic acid. Infiltration with some softening of upper lobe of left lung. Considerable cough and expectoration in the morning, slight at other time of day. Temperature ranges from 97 to 100 degrees, pulse 100 to 120, respiration 24 to 30. She was on cod liver oil, creosote and inhalation of menthol until June 15, 1895. Her weight fell during this year from 111 to 98 pounds. The diseased condition in the lungs also progressed so that when put upon nuclein,

June 11, 1895, her physical condition was poor, her appetite very small, sleep poor, gastric distress marked, occasional diarrhea, marked enemia and emaciation. There was infiltration of the upper right lobe and of the entire left lung with softening in the upper lobe. Weight 98 pounds.

August 2, 1895. She felt better and held her own in weight. A small cavity had developed in upper right lobe. The 1 per cent. nuclein was gradually increased in dose until by October, 1895, she was taking 6 c.c. hypodermically daily. She continued at that dose until May 1, 1897, then changed to 5 per cent. solution nuclein, begining with 1.5 c.c. and gradually increasing dose until May 20, 1897, when she was taking 4 c.c. She continued that dose. During these two years she has changed very little in her physical condition, except that the gastric indigestion has been to a great extent overcome. The sleep has improved, the cough has remained about the same, the strength of patient has not increased, the night sweats very seldom occur. Her pulmonary condition has varied, occasionally a little outburst of broncho-pneumonia occurring, but on the whole there has been a slight improvement. Since the beginning of the 5 per cent. nuclein this improvement has become marked.

May 20, 1897, physical examination showed that the cavity in upper right had disappeared though there remained some condensation of tissue there. There was small cavity in upper left with some infiltration about it. The cough diminished, the sputum was about the same in amount but less purulent in character, still containing tubercle bacilli. Temperature 97 to 99 degrees, pulse 100, respiration 22 to 26.

Case 3.—Elizabeth McD., age 42, American. Nuclein. First came under observation Nov. 11, 1895. History of pneumonia two years before and pleurisy one year before; since then loss of weight and strength, with cough and considerable expectoration. The records of this case, except the first and last physical examinations, have been lost. The first one, which was made Nov. 11, 1895, when nuclein was begun, showed slight infiltration in upper left, broncho-pneumonia areas in lower right, cavity surrounded by area of softening in upper right. Nuclein, 1 per cent. solution, was begun at 1 c.c. and gradually increased to 4 c.c., in February, 1896. She remained at this dose until she passed from under observation on Aug. 15, 1896, when her general condition was markedly improved; she had gained several pounds in weight, her appetite was good and bowels regular, she slept well, she coughed only occasionally and the last two examinations of sputum (which was very slight in amount) failed to show the presence of tubercle bacilli; physical examination showed that the signs of cavity and softening had entirely disappeared, leaving only the evidence of slight condensation in right apex: the signs of disease in lower right and left lung had entirely disappeared. Pulse 74, temperature 98 degrees, respiration 18.

This case I consider has recovered, though there remains slight condensation in upper right.

Case 4.—John D., age 21, nativity United States. Nuclein. This case came under observation Nov. 14, 1895, with a history of frequently occurring "colds" during the previous two years, and of a severe one in October, 1895, which has remained. Patient is losing in weight, sleeps poorly, has occasional night sweats, becomes slightly cyanosed upon exertion. There is considerable cough and expectoration. There is infiltration in upper right, infiltration and slight softening in upper left, bronchitis in lower left. Temperature 98 to 105 degrees, pulse 85 to 120, respiration 20 to 34. Injections of 1 per cent. nuclein begun Nov. 14, 1895. Weight 105 pounds.

December 17, 1895. During last month patient has shown no change in his general condition, except a slight improvement in appetite; the temperature 98 to 102.5 degrees, pulse 72 to 110, respiration 20 to 30. Cough and expectoration slightly increased. Area of infiltration and softening in left slightly increased.

January 16, 1896. Nuclein 4 c.c. Slight general improvement during past month, appetite and sleep improved, no night sweats, cough and sputum not materially changed. Temperature 98 to 101 degrees, pulse 80 to 120, respiration 20 to 30. Bronchitis has disappeared from lower left. Area of infiltration in upper left has diminished, but there is distinct, though small, cavity in upper left, but evidences of further softening are lacking.

February 17. During last month there has been very marked improvement in general health. Temperature 97 to 99.5 degrees, pulse 76 to 110, respiration 20 to 26, cough and sputum diminished, no bronchitis, areas of infiltration in both lungs diminishing, cavity in left distinctly smaller, no softening about it.

March 17. Nuclein has reached 6 c.c. Patient's weight has increased to 122 pounds. Temperature 97 to 99 degrees, pulse 70 to 90, respiration 18 to 22.

April 17. Continued improvement in every respect. Good appetite, sleeps well, normal temperature, pulse and respiration. Improvement in left lung particularly marked. Infiltration in upper right still pronounced. Weight 130 pounds. Patient went to Colorado, but returned in late autumn feeling so well that he has neglected treatment all winter and spring.

May 20, 1897. Patient feeling very well, appetite good, no fever or sweats. Temperature 98 degrees, pulse 70 to 80, respiration 18. Evidences of disease have entirely disappeared from left lung, which seems in normal condition. Slight condensation of upper right with evidence of small cavity posteriorly at junction of suprascapular and interscapular regions. Cough much less, some days none, but sputum still contains the tubercle bacilli.

Case 5.—Christina S., age 17, German parentage. Nuclein. History of measles in early childhood, hip disease when 14 years of age, recurrence of disease at 16 years of age. For four months, during which she was under observation, before nuclein was begun, she felt badly, was losing in weight, appetite poor, bowels quite irregular, tending to constipation with occasional diarrhea.

Physical examination revealed bronchitis in right upper lobe. Infiltration and slight softening in left upper especially noticeable anteriorly in the infraclavicular and mammary regions, cough troublesome, expectoration about 150 c.c. in twenty-four hours. Pulse 80 to 110, temperature 97 to 102.5 degrees, respiration 25 to 35.

September 1, 1896. Nuclein begun. Weight 98 pounds.

September 13. During last two weeks there has been a slight change for better, both in the local signs and in the general symptoms. Pulse 70 to 96, temperature 97.5 to 98.5 degrees, respiration 24 to 26.

September 25. During the last ten days an acute pneumonic process has attacked upper left lobe, pulse reaching 120 in frequency, temperature 104 degrees, respiration 28 to 34.

After the subsidence of the pneumonia, the case made steady improvement in all respects; appetite good, bowels regular, color returning to face and patient enjoying a feeling of good health to which she had been a stranger for several years. Her pulse has ranged about 80, her temperature from 97 to 98.5 degrees, her respiration from 20 to 24.

May 10, 1897. Her right lung has cleared up entirely, the evidence of softening in the left lung has subsided and there remains only slight condensation in the upper lobe. The sputum has almost entirely gone, not more than 8 c.c. in twenty-four hours, containing only six or eight tubercle bacilli, in examination of eight slides, after precipitation of the sputum by means of the centrifuge. Patient has menstruated this week for the first time in a year.

Case 6.—David D., male, age 20, native of United States. Nuclein.

This case is the case of laryngeal and upper right lung tuberculosis that was given Paquin's antitoxin from January 29 to Feb. 26, 1897, and did so very poorly. Weight 123 pounds. Temperature 96 to 102.5 degrees, pulse 110 to 120, respiration 26 to 30. April 30 I began injections of 5 per cent. nuclein. At this time the patient's condition was one of anemia, anorexia, severe cough, frequent vomiting, poor sleep, great depression of spirits.

May 20, 1897.—During last month there has been gradual improvement in all respects; sleeps better, does not vomit so frequently, appetite better, acknowledges (for the first time in four months) that he is feeling better. Larynx shows slight improvement, signs of softening in right lung are disappearing, though condensation remains. Sputum somewhat less in quantity and a little more easily raised. Pulse ranges from 100 to 110, temperature 96 to 100 degrees, respiration 24 to 28.

May 22, 1897. Today noticed the first unpleasant effect from injection of nuclein. Immediately after the injection, which had been gradually increased to 4 c.c., patient said he felt badly, there was great difficulty in breathing and a feeling of nausea followed by a tremendous determination of blood to head and shoulders, giving them a dusky red hue. This lasted about five minutes and then gradually subsided. About one hour later it was followed by a chill which terminated in vomiting, and then the patient felt better but weak. There was left on the shoulders and upper chest a slight purplish mottling. Injection was omitted the following day. For the next four days injections were given, and twice a slight recurrence of the feeling was produced; on the fifth day the attack was similar to but more severe than the first. During the period before the flushing, patient became pulseless, face became pinched and drawn and without color, breathing shallow, infrequent and difficult. Death seemed imminent. The mottling which followed the flushing this time showed itself to be intradermal minute hemorrhages. Two days later I gave a smaller dose with a slight recurrence of the symptoms. The patient was evidently so terrified that the dread of the injection precluded the possible benefit and I have since begun giving the 5 per cent. solution by mouth, on an empty stomach, beginning with 2 c.c. and daily and gradually increasing to 4 c.c., t.i.d.

I should like to mention one other case that has been on treatment for two weeks only, but has made so great improvement as to surprise the patient, all her friends and myself:

Case 7.—Martha McD., aged 24, native of United States, bookkeeper. Nuclein. Came under my observation May 11. Father died of heart disease; mother of "tumor"; one sister of consumption.

Patient had measles and whooping cough when 8 to 10 years of age. Began menstruating when 14 years of age. When 18 years old had severe cough lasting two months; has coughed occasionally since. Three weeks ago caught a severe cold by change of clothing. Cough has constantly increased since that time. She has a tubercular aspect and weighs 112 pounds; pulse 104, soft and quick; temperature 99 degrees, respiration 24; she sleeps well and her digestive apparatus is in good condition; heart and blood vessels are sound; blood shows slight anemia. Nose is normal, but there is muco-pus in naso-pharynx; larynx normal; particles of broncho-pneumonic infiltration throughout left lung, especially in upper lobe; sputum raised mostly in morning is muco-purulent in character, in chunks, contains tubercle bacilli, streptococci and diplococci lanceolati; amount raised in twenty-four hours 50 to 100 c.c. Treatment: Cod-liver oil and strychnin, t.i.d., and cough mixture of fl. ext. pruni virg., 1 c.c.; syr. scillæ comp., 1 c.c.; syr. lactucarii, 2 c.c.; every two to four hours. Nuclein, 5 per cent. sol., hypodermically; began with 0.30 gm. and increased dose gradually until she is now taking 2 c.c. daily.

May 27. She is feeling well, coughs only in the morning and thinks most of expectoration comes from naso-pharynx. Amount in twenty-four hours 15 c.c., is very tenacious, contains a few diplococci and a few streptococci, no tubercle bacilli. There are, however, still a few râles over upper lobe of left lung.

She has held her own in weight for the last two weeks, whereas before that she had been steadily losing.

Other cases that I have put upon nuclein have not been under observation long enough to justify any report. The following conclusions, however, I think are justified. Nuclein does no harm if injections are not too rapidly increased; the injections are not painful; one case recovered although there was a cavity in the right lung when treatment with nuclein was begun. The chronic case that has been on treatment for two years, receiving a hypodermic dose every day, bears witness to the value of the remedy. Signs of cavity have disappeared from one lung and become much less marked and and more limited in the other, the evidences of softening having also disappeared.

In one case beside the one that recovered, the bacilli have disappeared from sputum, which have become almost none. In another case I have no doubt that recovery might have been reported if the young man would stick to treatment, but he feels so well that he neglects himself, though the bacilli are still present and there remains signs of small cavity.

In closing this report I want to lay great stress upon the importance of properly conducted exercises in the treatment of pulmonary tuberculosis. Exercises designed to develop the chest muscles and increase the lung capacity; specific directions as to the character and amount of exercise and the time of day when the exercise should be taken are necessary. Whatever specific medication we may use, without exercise and fresh air our efforts will come to naught. The treatment of special symptoms deserves a few words:

Cough.—This symptom is generally best relieved by attention to the upper air passages, keeping them clean and free from secretion and by inhalations, mentha in some of its forms having been, in my experience, productive of the best results. The constant inhalation of essence of peppermint through a perforated zinc mask, as suggested by Carasso of Genoa, is especially valuable. When internal medication is needed to give further relief, the cough being irritating and the sputum difficult to raise, a combination of the fl. ext. pruni virg., syr. scillæ comp. aa 1 c.c., and syr. lactucarii q. s. ad 8 c.c. at a dose, given once in three to four hours has done best; chloroform water alone or combined with a little dilute hydrocyanic acid is very useful. Opium and its derivatives should be avoided entirely, excepting in advanced cases where they are the only remedies that give the patient any relief; of the various anodyne preparations, codeia and chlor-anodyne are the two that I have found most useful.

Dyspnea.—Not a very common symptom in phthisis, is sometimes very troublesome. For its relief, when not dependent upon the cardiac weakness, the fl. ext. quebracho I have found invaluable.

Pain in the chest is best relieved by strapping the chest or, if this fails, by hypodermic injection of morphin.

Hemoptysis.—Morphin hypodermically, rest in bed, dry cupping of chest, followed for several weeks by the internal use of the infusion of bugle-weed (*Lycopus Virginicus*).

Fever.—Best controlled by the nuclein administration. Sponging with alcohol and water is often of great value. Regular bathing should be a part of the routine treatment of every case.

Sweating.—This generally disappears during the treatment with nuclein. Sometimes, however, it requires special treatment. Atropin and aromatic sulphuric acid still remain at the head of the list of drugs useful in controlling this distressing symptom.

The *dyspeptic* symptoms require special study in each case and no general rule can be laid down for their treatment. Sometimes recourse to a diet of nothing but koumyss for two or three weeks will give the needed rest to the stomach and later allow a gradual return to a mixed diet. In all cases frequent examinations of the blood should be made in order to determine whether we are gaining on the anemia that is present to a greater or less degree in them all. Red bone marrow is the best agent to combat the anemia.

REMOTE EFFECTS OF BONE TRAUMA.

Read at the Third Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 23, 24 and 25, 1896.

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CLINTON, IOWA.

Some experiences during the past few years has suggested the subject of this paper, and I have in consequence examined a considerable range of medical literature for the purpose of obtaining data upon which to base certain propositions. The result is somewhat disappointing for the reason that writers, even those standing highest as authorities, have written but little in reference to the remote consequences of bone injury, especially in relation to such cases as may become the subject of controversy. Exception must be made of the writings of those who before the discovery of the special cause of tuberculosis regarded certain classes of joint disease and certain cases of osteomyelitis as the result of injury more or less remote, recognized or assumed

The effects of injuries upon the future condition of bone tissue are so varying in their nature that it would be quite impossible to predicate the future possibilities in any case of trauma in an empiric manner based upon experience alone, but rather, in the first place, on well-known pathologic facts. The apparent relation of cause and effect in medicine are, as is well known, so often misleading that a most critical application of facts, derived from a close study of pathology, becomes necessary to protect the surgeon from falling into serious error. So many writers on medical, as well as on other subjects, have fallen into the habit of loose and indefinite statement, that it is not difficult to find that the highest authority may be used in the support of propositions, often no doubt, quite in discordance with the author's real views.

It is true that unusual difficulties lie in the way of certainty in medicine from the fact of the complex nature of the subject and of the unforseen accidents which may arise to complicate the course of events, but much of this may be avoided by the employment of critical methods of study. The primary consideration in the study of the subject of this paper must be the influence of injuries in producing bone inflammation.

It is generally agreed that contusions of bone will produce swelling of the periosteum from extravasation and if the injury is sufficient or of such a character as to influence the bone an osteoplastic process will follow. It may generally be expected that resolution will take place in a short time, and that the periosteum and bone will be restored to to their former condition. If, however, this does not take place other results will follow, which it is the object of this paper to consider, and if we can reach an understanding of what may be expected from the standpoint of pathology and from the most reliable practical observations, we may be able to answer certain questions and come to conclusions which will be just and proper.

Leaving out of consideration for the present moment the results of infection, we will consider the effects of the osteoplastic process when resolution does not take place. I think it proper to stop long enough at this point to say that chronic irritation or inflammation of bone can not continue for an indefinite period of time without certain organic changes taking place. Assuming an injury to be the cause of an inflammation or an irritation of a more or less persistent character, we have as a result a proliferation of cells.

The density of bone tissue is such as to interfere with this multiplication of cells without the occurrence of a coincident absorption of bone substance, hence the bone changes in condition. The vascular structure of bone periosteum and medulla are involved, becoming more vascular and an exudation takes place underneath the periosteum into the medulla and into the enlarged Haversian canals, or in spongy bone into the trabecular structure. As the embryonic cells increase in number the osseous lamella becomes softened and absorbed and the lacunæ become larger, and these with the enlarged Haversian canals become filled with granulation tissue together with multinuclear cells, osteoclasts, which are believed to aid in the absorption of bone.

This form of inflammation of bone, known as rarefying ostitis, is attended with the formation of new bone beneath the periosteum and in the medulla, hence two processes are observed: 1, new embryonic cells and enlargement of lacunar spaces and Haversian canals; 2, the conversion of the new elements into bone.

Therefore the two processes of rarefying and formative ostitis occurring together give rise to conditions which will vary according to the predominance of the one or the other. If the irritation continues, resolution, of course, does not take place and disease becomes progressive, involving well determined pathologic changes, be they of the character of rarefying ostitis or osteo-sclerosis. If the disease is chronic or slow in development the rarefying process continues until an abnormal degree of sponginess is reached, whereby the bone becomes larger, lighter and lessened in its power of resistance and fracture easily occurs. Section of a bone which has undergone this change will show the numerous spaces, the enlarged Haversian canals and medulla or the more fragile condition of the trabecula. The extent of these abnormal appearances will be determined by the degree of inflammation present and the advancement it has made.

If, instead of the continuance of the rarefying process, the bone granulation tissue becomes organized and new bone is formed, the spaces become slowly filled, the medulla is encroached upon and the bone becomes changed in character; it becomes harder and denser. The continuance of the bone formation process indefinitely must result in an interference with the vascular supply by compression of the blood vessels and an ultimate interference with the nutrition of the bone, leading finally to necrosis of greater or lesser areas. If, however, the disease becomes arrested at a point short of a serious interference with nutrition, the condition of osteo-sclerosis may remain permanent. The lesson, then, to be derived from a consideration of the pathologic changes in chronic inflammation in bone, teaches that this condition can not continue indefinitely without giving rise to well marked internal and also external changes, which may be readily recognized if the bone is situated superficially so as to place it within easy reach. No doubt slight degrees of pathologic changes may take place without objective signs which can be discovered by ordinary surface examination.

It appears from a considerable personal observation among railway and mill employes that the organic changes in bone resulting from chronic inflammation rarely terminates in complete resolution, a degree of permanent thickening remains, which, however, gives rise to no troublesome symptoms or disability, unless the thickening is in the immediate neighborhood of a joint. There may be no constant relation between the severity of the subjective symptoms, the extent of pathologic changes and the objective signs, but it is fair to presume that if symptoms of disease persist without abatement, more or less active changes are really taking place with the results already indicated.

The foregoing relates to cases which escape the influence of microbic action, either septic or tubercular. In predicting the future results of bone inflammation we have always in mind the possibility of infection. In general terms it may be said that the more abundant the granulation tissue, the more active the suppurative process in the event of pus infection, a condition most often met with in inflammation of spongy bone, or in the trabecular structure of long bones near the articular extremities. A traumatic osteomyelitis with pus infection, occurring early or late, means a pathologic condition, manifested by evidences of a positive character, showing very soon the serious nature of the lesion; the more or less rapid approach of pus to the surface, redness and inflammation of the soft parts and final discharge, and the formation of sinuses communicating with carious or necrotic bone. In the case of rarefying ostitis of denser bone, the granulation tissue filling the enlarged spaces may become infected and the lesser formation of pus, and the more localized process may give rise to a small abscess, chronic in character and occasion less marked symptoms, but in the search for the cause of the symptoms the objective evidence will be unmistakable.

Tubercular infection of the actively granulating tissue will be marked very soon by an accession in the symptoms and a more decided progress of the disease, the early formation of sinuses consequent on the development of tuberculous pus, and if double infection from the invasion of the true pus microbe happens, the added constitutional symptoms of sepsis will follow.

There can be no doubt according to the best authorities that an ostitis of traumatic origin, even if resolution has taken place, at least to the extent of subsidence of all active inflammatory processes, may become the focus of a tubercular development, by serving as a point of least resistance. But can we say that this local predisposition to tubercular infection is permanent, *i. e.*, that after all inflammation has subsided and the structural changes have been followed by a restoration in the nutritive balance, can we say that the thickened bone, or the bone that has been subject to an inflammation, is still exposed to the special danger of a tubercular disease. The best evidence is to the effect that when the nutrition of the bone has been restored the *locus minoris resistentiæ* ceases to exist. The time for infection is when the nutrition is impaired by the products of inflammation, or when the products are in that special condition which invites the cultivation of the bacillus tuberculosis. It may be difficult to determine when the bone has become restored to that condition of normal resistance, but to my mind the appearance of a tuberculous process long after all evidence, save the thickening, of the inflammation has disappeared, is not sufficient evidence of the causative relation of the inflammation itself.

It is generally admitted that an injury to a bone, particularly to the cancellous structure in which trabeculæ are broken or in which a minute hemorrhage occurs may be the foundation of a tuberculous inflammation having its exact seat either in the new cells formed incident to repair, or in the hemorrhagic focus.

In the examination of a case of bone inflammation, even when resolution is apparently going on favorably, we can not avoid the apprehension that a tuberculous process may develop at any time, and in the light of this fact our opinion must be guarded, for the otherwise reasonable expectation of a recovery may not be realized. If it is true, as it is generally accepted, that an injured or chronically inflamed bone is subject to tubercular infection, for how long a time and under what circumstances may the above conditions serve as etiologic factors in the production of

the disease? Much loose generalizing has been indulged in on this point and efforts have been made to show that a slight injury to a bone may give rise to a locus *minoris resistentiæ* which will especially predispose to the disease for an indefinite time. That is, if a bone becomes injured and all symptoms of such injury subside, yet after months, or even years, tuberculous process develops. Therefore, it is said that the injury is the remote cause. It may also be assumed in a given case of injury that even if apparent recovery takes place the claimant is exposed for an indefinite period to the rise of a dangerous disease as the logical sequence of the injury.

I am not advised that any modern writer of eminence holds to this view, but it is a fact that opinions of this character are entertained by members of the profession. Senn regards bone tuberculosis as the result of trauma under any circumstances as rare, and Cheyne, while believing in the etiologic influence of injuries in producing bone tuberculosis, cites only a few cases in which there was satisfactory evidence to his mind of the causal relation, and in all these cases the tuberculosis followed immediately without any apparent recovery from the injury itself, and the same is true of all other cases recently recorded. Referring to a previous statement in this paper, I contend that the circumstances under which infection must occur, if at all, is when the local resistance in the bone is impaired by the injury; or in the presence of a minute hemorrhage; or in the presence of granulation tissue as the result of a mild inflammation or repair; and the limits of infection must not extend beyond the restoration of the injured bone to its normal condition and that the evidence of such restoration must be the disappearance of objective symptoms in bones subject to easy physical examination.

The origin of a true bone tumor from a metaplastic process is no longer entertained. The formation of an exostosis or a localized or diffused hypertrophy from the reparative process in a bone following an injury may occur, but the fact is so plainly indicated by the physical condition of the bone that it can not fail of recognition and the continuity of symptoms subjective and objective with the development of the bone enlargement will indicate the causative relation, however slow the process may be. In the process itself we recognize the histogenetic changes already considered, viz.: Hyperemia, exudation and proliferation of cells from the deeper layer of periosteum and the conversion of the osteoplastic elements into bone.

The development of sarcoma from bone trauma is altogether possible, especially in persons predisposed through heredity. This is occasionally seen to occur in the immature callus after fracture.

In irritation following trauma newly formed embryonic cells may form the matrix for a sarcomatous development through failure to undergo transformation into tissue of a higher or more resistant physiologic type. That hereditary predisposition is not absolutely necessary in the development of a sarcoma matrix, although it must be assumed in the present state of knowledge of the histogenesis of tumors that a preëxisting matrix of embryonic tissue was present to be lighted into activity under favorable conditions, was shown in a case which came under my care some eight years ago. A man received an injury to the middle of the right humerus, not sufficient to produce a fracture; this was followed by a moderate irritation in the bone accompanied by sufficient pain or uneasiness to attract his attention when not otherwise engaged; in a few months he observed that the bone was increasing in size. The enlargement gradually increased during a period of two or three years, until it became difficult to pull over it a coat sleeve of ordinary size; finally the bone was fractured by ordinary muscular effort. The bone appeared to unite but the condition became so troublesome that he consulted me. The malignant nature of the disease was so apparent that I had no hesitation in declaring it to be a sarcoma of the bone, and advised amputation at the shoulder joint. The proposition was promptly accepted and the arm removed. A microscopic study showed the disease to be a sarcoma of the myeloid type; the growth beginning in the medulla and finally leading to the absorption of bone and extending to the contiguous soft parts. There has never been any return of the disease. The sequence of events satisfied me that trauma was an important factor in the etiology of the disease.

The practical propositions involved in this paper are based on inflammation or irritation in bone following injury and the sequel resulting therefrom.

1. Resolution, including a complete restoration of the bone to its normal condition, occurs in the vast majority of cases.

2. Resulting in rarefying ostitis. Condensing ostitis, or a combined rarefying and condensing ostitis, which may remain as a more or less permanent condition; if slight in degree giving rise to no well marked subjective or objective signs after the process becomes arrested.

3. If the process continues for a period beyond a few months, well marked and unmistakable changes in the physical condition and appearance of the bone will become manifest.

4. A persistent acute or chronic osteomyelitis will also give rise to unmistakable physical changes in the bone.

5. A persistent chronic osteo-periostitis will give rise to thickening of both periosteum and bone of a character that will be readily recognized if the bone is so situated as to admit of easy surface examination.

6. If the products of inflammation in cases of rarefying ostitis or in osteomyelitis become infected with pus-forming microbes, the suppurative process will become plainly evident, except in cases in which the process is very limited, giving rise to a small abscess in the bone which may be indicated only by subjective symptoms.

7. The injury and irritation following may establish a locus minoris resistentiæ which may become the seat of tubercular infection with certain definite results. The length of time after a trauma, during which this influence may exist, can not be definitely determined, but it may be assumed in the light of critical practical experience and pathologic research that the special predisposition will cease to exist as soon as the effused blood is absorbed, and the protoplasmic elements—the products of irritation or inflammation—have been resolved into new bone or have undergone degeneration and absorption, *i. e.*, as soon as the normal nutrition balance is restored. I do not believe there is any scientific evidence or any practical facts that will bear criticism, which will support the assumption that the locus minoris resistentiæ may continue for months or years after all signs of the injury and its immediate results have disappeared.

8. There is no evidence to show that a carcinoma or

sarcoma may develop as the result of an injury after the immature bone elements have become transformed into tissue of a normal resisting physiologic type.

DISCUSSION.

Dr. REED, Columbus—The subject of "Remote Effects of Bone Trauma" is of interest to every surgeon, and especially to the railroad surgeon; the repairing of bone, the possibility of disease and the changes that are wrought, are all points which may interest the surgeon and interest the company—especially if the patient has occasion to call on the company for damages. The subject has been very ably handled by the Doctor; he has reviewed in brief and concise form cases relative to the repairing of bone, and the changes which take place in the anatomy, in an admirable way; at the same time there are some points which the Doctor did not touch upon, and which might be of interest to us in this connection. I have no doubt you have all had occasion to observe in your practice cases in which you had taken the best care, and in which you had put on the ordinary splint, kept the bone in proper position and to all appearances in apposition, kept him quiet the ordinary amount of time, the patient had got well; and yet after all this the patient after he was given his liberty would go out and come back to you probably in one or two years afterward with a deformed limb. Now the question comes up, Is that the fault of the surgeon or is the company in any way liable? I have in mind two cases of this kind in which the patients had a fracture of the femur, an ordinary fracture in one case and an oblique in the other; in each the patient was cared for by a competent surgeon, and was dismissed with little or no deformity, or very little shortening, and yet in each ease after the patient had gone out about his business his limb became deformed. Now we have there a case of imperfect repair. We have no doubt had in the first place a perfect union, the intervening space filled, new bone tissue formed, that is, the bone cells had bridged across the chasm, but they were not properly supplied with lime salts so as to harden them, and the result is that instead of that new bone becoming solid it was still elastic, of a cartilaginous character and we, in one case, had the bone not becoming actually displaced but giving away and causing a bow leg. In the other case the union was solid and the weight of the man on the limb gradually forced the bones past each other, not because they were not united, but because there was not sufficient bone salt to make the new bone hard. Those are points I do not think the railway company or any other company are responsible for. I think we ought to discriminate between cases in which deformity followed a union and the case where the surgeon did not properly adjust the bones from the case where the man does not have sufficient vitality to repair the bone properly, or to furnish the lime salt after the new bone was formed. Again, in reference to sarcoma, the Doctor speaks of what I think it is well to remember, that in the case of sarcoma we can not have a sarcoma following traumatism—and I think Dr. Senn has gone into that in his last work very thoroughly—unless there is is a prenatal or post-natal embryonic cell condition; if there is a prenatal or post natal disposition then a traumatic trouble may cause sarcoma, but this must exist prior to the injury and is liable to be the result of previous condition because we know sarcoma does occur without there being a trumatism at all.

In reference to tuberculosis, I recall a case that came to my notice in the hospital a year and a half ago, in which there was a marked case of tuberculosis; a gentleman had pulmonary tuberculosis, which was confirmed not only by expert diagnostitians, but by microscopic examination of expectoration, and in this case the person was emaciated and to all appearances he would die from tuberculosis before he had time to repair bone. It was a railroad accident and he was caught between the cars when the accident occurred, and there were seven distinct fractures distributed between ankles and knees. I observed in this case one fracture repaired at a time—one fracture and then on the same limb another fracture and so on; it went the round, finishing one limb before repairing the other; it was a beautiful case, and notwithstanding he was suffering from tuberculosis, coughing and expectorating profusely, the repair processes went right along just as promptly, so far as any one fracture was concerned, as if tuberculosis did not exist at all. Now the point is this: If tuberculosis is liable to come as the result of injury why would it not occur where the man was suffering from tuberculosis and the whole system run down from disease and in an ill condition to take on reparative processes at all, but we do not have it occurring in any other part of the system excepting the lung. I simply bring these cases up to emphasize what the Doctor has said in his paper, that I do not believe an injury, a traumatism, is conducive to the development of tuberculosis or sarcoma in and of itself, that it requires a condition that is entirely separate from the traumatism to induce it.

Dr. E. M. DOOLEY, Buffalo—Dr. Reed's remarks in reference to remote effects of bone trauma in case of fractures recall to my mind an interesting case that occurred in Buffalo about three years ago in which the case was a fracture of the tibia about the middle, and a classmate of mine attended him. He had a perfect result and a rigid union and the patient was able to use his limb. But a year afterward at the seat of fracture the callus softened and he had in reality a case of nonunion. The case was interesting because the surgeon was sued for malpractice. Now it was a case of the fault of the patient and not the surgeon, yet, although the surgeon won his suit, it put him to a great deal of expense, both in time and money. And I think these remarks in reference to the possibility of fracture, after it has firmly united to all appearances, softening a year or year and a half later, worthy of emphasis.

Dr. C. K. COLE, Helena—*Apropos* of what has just been said, I wish to refer to a case which occurred about two years ago in the practice of one of my neighbors, and which illustrates one of the phases of the subject touched upon in this paper. A man while riding on horseback was rubbed against a tree and the humerus was broken near the head, which was dislocated. The accident occurred in a remote region and a doctor was not consulted until, I think, four days subsequent, when the man received proper attention. The head of the bone was reduced, the fracture was restored. The patient then and for some weeks following complained of pain, increasing constantly. He consulted a prominent surgeon in San Francisco, who, after making a cursory examination said some things to the patient which reflected upon the doctor who had charge of the case, and these reflections suggested to the patient a suit for malpractice. But before bringing the suit, Dr. Senn of this city was consulted, and Dr. Senn discovered—I think this was some four months after the accident—an osteo sarcoma. Amputation was resorted to, injections were practiced, and the patient remained in St. Joseph's Hospital for some weeks; he returned home and again came to Chicago and was again treated, in the meantime having instituted legal proceedings against the doctor; and he died here in Chicago from a bona fide sarcomatous growth. The reason for calling attention to this case is that it is pertinent to one phase of the subject discussed in the paper and that is a phase of the subject that is not well understood. The fact that a traumatism may precipitate this growth, as Dr. Reed has well said, so far as our knowledge goes there is a preexisting condition, but an injury of this kind does precipitate a growth of this character. The medico-legal aspect is interesting to us as railway surgeons, because unless this is well understood we, and the companies we represent, are liable to be sued for malpractice in cases in which we are not at fault.

THE PRESIDENT—I remember a case where a blow was received on the clavicle and on the skull, and sarcoma developed in both places, at the two contusions.

Dr. GALBRAITH, Omaha—I don't believe we will have a more important paper before this Association than the one just read. While we have so far confined ourselves entirely to pathology of bone trauma, bone inflammation and the products of bone inflammation, I think it would be well for us to give the treatment of these conditions, these lesions, some consideration, more especially as to that part of the bone which enters into the formation of the joints, inasmuch as the treatment in my belief, varies as regards the location of the bone, more especially does that apply to traumatic osteomyelitis. At various times I noted that the Doctor spoke of resolution following, as I understood, simple osteomyelitis. This may occur, but as regards the syphilitic, I do not think it possible; I believe osteomyelitis attacks this portion of the bone. More especially is this subject one, or should be one, of the most serious considerations that is presented to us of a surgical character, and my results in almost every case I can recall to mind now have been a necessitated amputation.

Dr. WARL, Conneaut—I happened to be unfortunate enough to witness a case in which a man 50 years of age had a very large osteo-sarcoma develop after the fracture of a clavicle. From its magnitude, before attention was called to it, any operative procedure was interdicted, but, in connection with it there developed a very friable condition of the osseous structure generally, and from the simple act of turning in bed, or something of that kind, fractures of one or more of the limbs occurred, and death finally ended the scene. This man was supposed to be healthy and in good condition until he met with the accident leading to the fracture of the clavicle, but from that time on there was a general decline, with the development of the condition specified filling all the space. It was a very large growth and a degeneration of the bone structure generally.

There must have been a preëxisting constitutional condition, but undoubtedly, in that case the fracture was the exciting cause or the developing cause of the trouble that immediately followed.

Dr. REED—Permit me just to make one statement in rebuttal, as they would say in court, to the remark made by our distinguished President; he spoke of sarcoma following contusion on the head and on the clavicle. I simply want to say, not less than eight weeks ago, I made an an exploratory incision into the abdomen for the purpose of diagnosis, and there I found a sarcoma of the liver and the left kidney, the lower portion of the right lobe of the liver and the right kidney, and both distinct, as far as any anatomic connection was concerned.

Dr. EGGLESTON, Seattle—A young man about 28 years of age, inmate of a penitentiary, while working in a brickyard received a blow on the right side of the skull from a piece of brick thrown by one of the other inmates, and a few months later a tumor developed at the point of injury, which was at first attempted to be removed by the surgeon of the penitentiary; he had to stop the operation on account of excessive hemorrhage; I believe that he attempted to do it under cocain without an anesthetic; a few months later he gave an anesthetic and removed the clot, scraping off the bits of bone; it healed nicely, but a few months later it developed again, and when it came back, a year ago last June, I observed there was a tumor on that side of the skull as large as a goose egg; I pronounced it a sarcoma. I happened to have at that time some of Dr. Colles' culture of the erysipelas and commenced the use of that by injecting it in the tumor and pushed it to the extent that I almost killed the patient, but it had no result on the growth. It went on and a few months later another tumor developed on the opposite side of the skull about the juncture of the parietal with the frontal bone, and in a short time he developed paralysis on the left side from pressure on the right side, and died. A postmortem was had; the tumor went down through the skull and pressed on the brain as large as a goose egg and there was a deposit of two or three pounds of the sarcomatous growth in the left cavity. A sarcoma resulted from contusion of the bone in this instance.

Dr. BALDWIN, Salt Lake City—A man running from a policeman jumped on a shed and broke his thigh. I happened to be one of two to dress the wound. After the first, there was union there but not a bony union. Afterward he fell into the hands of Dr. Cole and that portion was excised and the bone wired, but never got a union; the result was that they finally amputated it. I have in mind another case that possibly shows the result of very remote traumatism: A young boy about 13 years old was playing with a dynamite cap which exploded and struck him on the head and it was thought only the outer table of the skull was fractured. But it went on for something like four years, when I first saw him and he began to suffer with severe pain, I do not know how long, but two or three years after the injury; and it kept up so long that it was said that something was necessary to be done. At the same time, I think about the time the pain began, he began to have indigestion—he could not eat anything or keep anything on his stomach. Dr. Cole and myself trephined and removed a portion of the bone and afterward he was relieved of the pain and materially relieved of the indigestion or the stomach trouble. Now what connection that could have with the stomach I do not know, but certain it was he was relieved considerably.

Dr. FAIRCHILD—The object of this paper was to call the attention more particularly to sequelæ which might appear as the remote effect after apparent repair had taken place. It sometimes happens we have a patient alleging pain and difficulty in a bone like the tibia, for instance, which is exposed to easy examination and it is alleged this is due to inflammation in that bone. On examination we find nothing whatever, no thickening of any kind in any direction. Now, the question would be whether or not we could have an inflammation persisting in a bone for a long period of time, say one or two years, without any marked signs being manifest. That was one of the propositions in the paper, whether we could have a bone inflammation continue without giving rise to physical signs. I have one or two cases of that kind, a patient that hobbled around on crutches and having litigations over it, and yet a physical examination showed no sign whatever of a physical character. Then further along after the injury we might expect tuberculous disease to develop. Now in case of fracture I believe it is true that tuberculosis does not generally occur, because reaction is so active that tuberculosis is not ready to develop, that it develops in slighter injuries. Now, in slighter injuries can we say a tubercular process is liable to develop in that bone. Suppose for instance a patient received injury and it apparently healed, no sepsis discovered; yet eighteen months or an almost two years, say, lacking a day, the patient has a tubercular process develop. Now a suit is commenced, instituted on the ground of tuberculosis as the result of the injury, and yet there was no sepsis for many months. These were points on which I was anxious to get some information. Again, in case of injury to a bone which has healed, repair has taken place, and yet a year and a half after that a sarcoma develops at the seat of injury. Sometimes we are able to determine that all the nutritive balances have been established, the cells have reached maturity, perfect physiologic poise has been reached, and yet a sarcoma develops. Can we say it was the injury which caused that sarcoma, or that it resulted from the injury received months before? Those were the points I desired to bring up, and in looking up the authorities I have had difficulty to find any authority specific enough on this subject as to enable one to believe or to form an opinion as to a consensus of medical opinion. We hear in litigation, what changes will occur in bone tuberculosis, and I have attempted to say that when the nutritive balance was restored in the bone then the danger from tuberculosis was ended, and the question would be to determine when the nutritive balance was restored, whether the repair process has occurred and cells restored to maturity. We do not believe the cell that has reached a state of maturity will become degenerate, so that in bone when the bone has become restored to a normal condition tuberculosis does not occur as the result of injury. We pretend to say that in injury to the bone if the cells become restored to physical maturity, if sarcoma develops, it is not the result of the injury. It was not intended to discuss the question of reabsorption of the callus in case of fracture, although as the discussion has gone in that direction I will mention a case, a compound fracture of the bones of the forearm; the part healed without union; the bones were resected and wired, and union began. Then it was noticed after a while that an additional joint existed, that is the callus had become absorbed. A friend of mine in Washington was operated on in the same way, and I had a letter from the doctor in which he stated he had excellent results. I saw the case six months later and the additional joint was there. But this branch of the subject I did not take up, but simply the matter of the future possibilities in the examination of an individual case; and in examining a case in which there is a claim made, can we say this condition has any bearing upon the injury which the person alleges to have received?

SOCIETY PROCEEDINGS.

Medical Society of the State of Pennsylvania.

Minutes of the Forty-seventh Annual Session.

(*Concluded from page 32.*)

The next paper was by Dr. E. H. James of Harrisburg, on

PLEURITIS.

Until recent years, the exposure to wet and cold was supposed to be the cause of pleurisy. Medical text-books of less than a quarter of a century ago spoke of it as occurring idiopathically, or to quote Flint, "in the large proportion of cases it is spontaneous, that is, it proceeds from some unknown cause." The discovery of the tubercle bacillus by Koch in 1881 revolutionized our knowledge of the subject. We know now that the majority of pleurisies are caused by tubercular infection. It has been found that the tubercle bacillus has the property of exciting a fibrinous or a suppurative inflammation not necessarily specific in character. The infection of pleurisy like that of phthisis is not a simple but a mixed one. Some of the micro-organisms are more destructive in character than the tubercle bacilli.

A certain proportion of pleurisies are undoubtedly of rheumatic origin. The infectious matter which will excite a rheumatic polyarthritis in one individual may in another cause pleurisy or inflammation, in another serous membrane.

Treatment: In the acute stage, acetate of potassa, 15 grains, tr. aconite R. 2 drops; sulph. codeiæ gr. $\frac{1}{8}$; spirits of minderus 2 drams. This mixture to be given every three hours. Dry heat externally. When of the rheumatic type add 10 grains of salicylate of sodium to the mixture given above. To get rid of an effusion of serum, withhold liquids as much as possible and give saline purgatives and diuretics; the blood being thus deprived of its watery elements will frequently take up that from the pleura. If it does not do so the aspirator should be used and from ten to twelve ounces of liquid withdrawn, the remainder will usually promptly disappear. The character of the fluid in the pleural sac may be easily determined by withdrawing some with a hypodermic syringe. When pus is

found neither the aspirator nor trocar and canula should be used, but a free incision should be made in the seventh or eighth intercostal space on a line with the posterior axillary fold; the pus and fibrinous clots can thus be thoroughly evacuated, after which a drainage tube guarded with a safety pin should be introduced and a dressing of sterile gauze and cotton applied. The tube may be shortened from time to time and when the discharge is thin or serous may be withdrawn. The initial operation as well as all subsequent dressings must be done with strict aseptic methods, the danger of acute infection is great. It is necessary to excise a portion of rib when drainage can not be properly secured by thoracotomy. This allows thorough exploration, pockets of pus can be broken up, drainage will be perfect. Irrigation of the pleural sac I believe is harmful, it irritates, delicate adhesions are broken up.

In the pre-antiseptic era according to statistics 87½ per cent. of empyemas died. Today we expect over 90 per cent. to recover. Of six cases of empyema which I treated recently all recovered. In one of these a portion of the seventh rib was excised, the others treated by thoracotomy and drainage.

A resolution was adopted by which each member was earnestly requested to write to his members of the Legislature urging the passage of the Act now before them relative to malpractice suits.

Dr. W. M. Robertson of Warren presented a paper on

A COMMON CAUSE OF LOOSE BODIES IN THE KNEE JOINT.

An authority says that "In joints that have been free of disease loose bodies are invariably the result of a trauma." It is my intention to direct your minds to the more common lesion of the knee joint produced by trauma according to the teachings of Arbuthnot Lane of Guy's Hospital, London.

Injuries to the knee usually occur when it is flexed. As in all hinge joints the articular surfaces of the knee are best protected when in a position of extension. In flexion the articular surface of the tibia covered by the interarticular cartilages glides backward on the femur, exposing the articular surfaces of the condyles of the femur. During flexion the patella falls more and more into the intercondyloid notch of the femur and forms a great protection, but you will observe that the outer condyle is favored much more than the inner one. It is a great defense to the joint from injuries inflicted in front and distributes the weight when in the kneeling posture.

In falling forward the thighs are usually abducted in such manner that the exposed and unprotected articular surface of the inner condyle sustains the force of the fall and receives the trauma from which the loose bodies originate later on.

It has been supposed that these bodies came from the separation of portions of synovial fringes and injuries to the semilunar cartilages and without doubt such is the case many times, but in the majority of cases Arbuthnot Lane has demonstrated that the more common origin of loose bodies is the dry necrosis and separation of a portion of the articular fibro-cartilage of the inner condyle injured by direct violence, such as is sustained by a fall forward. In these cases the blow suffered by the articular surface is sufficient to devitalize the area.

The nutritive processes are stopped and after a time separation of the cartilage occurs and becomes the loose or floating body in the joint. This may produce the history of locking and pain, or it may give rise to simple chronic synovitis, which may in time present every appearance of rheumatoid arthritis or of tubercular disease.

A number of cases might be cited in which Mr. Lane exposed the inner condyle to view showing the area from which the cartilage had separated and then after careful search enough of cartilage found in the joint to exactly correspond to the space left after its separation.

The practical point is to recognize these cases and lose no time in operating. In a number of cases I saw Mr. Lane pare off the edge of partially dislocated semi-lunar cartilage of the knee.

Dr. Eugene Wasdin, Pittsburg, read a paper on

PATHOLOGY OF INFLUENZA.

Laboratory observation has alone resulted in any service here. The organism of causation has been demonstrated by Pfeiffer and Canon. It is difficult of cultivation. This disease is of great importance. It increases largely the death rate from pneumonia. He sketched its complications at some length, demonstrated the gravity of the disease, even when uncomplicated. Unfortunately, the nomenclature is much confused. General symptoms of catarrh of the stomach and small intestine are frequent. After the thoracic condition is pronounced, attention is called to the distension of the abdomen. There is no pain, but a sense of fulness, diaphragm is displaced, the weakened heart much embarrassed; all this depends upon the toxic influence of the sympathetic nerve supply. In the lungs the elastic tissue being highly organized, impairment of this tissue is followed by loss of proper action of the capillaries.

Dr. J. M. Douthett of Pittsburg read a paper on

CLIMATE IN CONSUMPTION.

He alluded to the want of attention to the physiologic effect of climate. We need reliable statistics on the climate of these places so much lauded for consumptives. Each vaunts its own and attacks the others. Few can go away, not having the means to travel. The most desirable conditions are: As much altitude as the patient can stand; as little humidity as possible; moderate temperature devoid of cold. High altitude increases the red blood corpuscles, with an increase of the hemoglobin, increase of lung expansion. In elevated arid regions, decay is slow, and indeed under favorable conditions does not occur, because of dryness, air purity, freedom from organic dust and germs, large amount of ozone present, etc. A dry climate is very important; next an even temperature. On the whole, the central plateau of Mexico presents the best climate for the tuberculous, combining desired altitude, low humidity, even in the winter months, and in the mountains one may have very pleasant summer weather. Hotel accommodations are very poor, the chance for employment is moderately good if one knows the Spanish language. El Paso and Las Cruces are the best all-round places in the United States. In western Texas are numerous places where one might obtain employment at a ranch or in the mines. Colorado has too severe winters, summer is the best time there. For those who have heart complications, Florida and Southern California are the best. A residence of several years is needed for a cure, hence it is necessary to find employment so as to get interested in the place. Sanatoriums are of advantage to a certain class; all should be encouraged to obtain out-door employment, to get the benefit of the sun and fresh air.

Dr. Evan O'Neill Kane of Kane read a paper on

WHY THE TOBACCO HABIT IS PECULIARLY REPREHENSIBLE IN AND DETRIMENTAL TO PHYSICIANS.

His purpose was to draw the attention of the profession to the injury which they do both to themselves and to their patients by this indulgence. In order to prove the truth of this statement, it is pointed out that no delicate patient can tolerate the odor of tobacco which the attending physician frequently intrudes upon them. Stress is laid upon the fact that all special senses are to a more or less serious extent dulled by using tobacco, the power to diagnose disease being thus greatly curtailed. Having passed briefly in review the manner in which each of the special senses suffers, the paper closes with the claim that even the will power becomes weakened in those who are addicted to the tobacco habit.

Singular to say, this paper was received with a round of applause from all present, as also were the remarks of Dr. A. B. Brumbaugh of Huntingdon, who fully accorded with Dr. Kane and arraigned the members for the indulgence so freely on the occasion of the reception the evening before, where every lady was compelled to pass through a crowd of smokers in order to reach the parlor where the reception was being held.

THE FAUCIAL TONSIL AS AN AGENT IN SYSTEMIC INFECTION

was discussed by Dr. G. B. Sweeny of Pittsburg. The faucial tonsil occupies a humble position. As an agent for the secretion of fluid to aid deglutition, it is no more active than the surrounding mucous membrane. It is only when it becomes the seat of disease that it demands attention. While in a state of inflammation it frequently affects the entire economy. It is a most readily accessible point of attack in infections; however mild the process, the tonsil becomes a hot-bed for infection, and readily distributes morbid products to adjacent and remote organs. Interfering when enlarged with respiration, it produces the "mouth breathers." Hence improperly filtered, moistened and warmed air is hastily conveyed to the lungs, oxygenation is prevented; we see then the dull, listless eye, impaired mentality, the pallid complexion, contracted chest, anemic and wasted muscular organism. The tonsil is a vulnerable point of attack for diphtheria, and often a culture medium for propagation of germs which would otherwise perish. We are now able to establish almost beyond doubt the infectious nature of rheumatism. We can not fail to observe the analogy in the systemic symptoms of follicular tonsillitis and acute rheumatism. Though we have not yet been able to isolate a germ for rheumatism, yet in this disease we find in the blood streptococci which characterize follicular tonsillitis, and are found in the tonsil when affected by that disease. Tuberculosis shows us the glandular system largely affected. Here we may regard the tonsil as mainly if not wholly the source of infection. So with typhoid and malarial fevers due

to a specific bacillus, and as drinking water plays a conspicuous part in the causation, we may infer that these bacilli are thus aided in obtaining access to the whole economy. We claim that the tonsil being an open gateway for the reception of all forms of disease germs, it is plausible that it is liable to infection equal with Peyer's patches, etc.

Dr. LOUIS LAUTENBACH of Philadelphia read a paper on

THE NECESSITY FOR ACTIVE, NOT PASSIVE, TREATMENT IN EAR DISEASES.

It is my purpose to advise a more intimate study of ear conditions, and to present advanced methods of treatment. I am thoroughly convinced that by paying close attention to the ear chronic cases can often be materially improved and relieved, but especially do I advocate that upon the first evidence of any ear trouble it should be thoroughly examined, and if the physician feels himself incompetent to take charge of the case he should refer it to some one whom he knows will do justice to it. The policy of doing nothing at all, of letting diseased nature have its own way, is, to say the least, dangerous. What I protest against most strongly is the neglect of the family physician to give proper weight to the symptoms of ear disease in their incipiency, when a thorough treatment or two would dissipate the pathologic condition.

The importance the nose and throat bear to the ears has been recognized and has given rise to a false idea that ear diseases created by nose and throat trouble is curable through the nose and throat alone without local ear treatment; that the removal of the cause of the disease cures the disease itself. The removal of the cause is a necessity, surely, but attention to the changed ear condition is equally important.

To keep open the Eustachian tube, but especially to prevent any ossicular stiffening, membrane thickenings or adhesions I early use massage with the Siegle speculum or a phono or pneumo or mixed masseur of my own devising. I use the phono and mixed massage, as I find even early in cases of ear involvement there is often a tendency to a dulling of the sensitiveness of the auditory nerve from disuse.

By my masseurs I can produce any amount of suction force on the membrane I wish, with or without sound waves, giving any number of suctions I may deem advantageous, and can let the machine act upon the drumhead any period from a few minutes to several hours, if necessary. For this purpose I use machines actuated by electricity in which the suction is produced by a diaphragm operated by an electro-magnet; again a stronger one in which a suction pump is worked by an electro-magnet, and another in which a double suction pump is worked by a motor, this latter machine I am at present operating in connection with an ordinary Gramophone with an extra loud transmitter. These machines applied sufficiently early will frequently prevent the serious effects so often observed of rigid ossicles and thickened attached membranes and non-responsive ear nerves.

In cases of acute, active, painful middle-ear inflammation, I not only rely on dry heat, but am constantly using hot flaxseed poultices, and I must confess that I get remarkable results when they are used very hot and often. They will relieve pain and infiltration at times marvelously. Contrasting the results of the two methods, the passive serves to remove the exciting cause of the ear disease, depending upon the reparative powers of nature to restore the ear to normal. The other method endeavors to combat the pathologic ear processes and encourage nature to resume her normal sway. It endeavors to retain the full function of the conducting apparatus as well as of the ear nerves, and in every way possible strives to minimize the danger of any permanent disease of the ear or impairment of hearing.

There is another case of ear patients which has been almost totally neglected so far as direct ear treatment is concerned. I refer to the deaf mutes. I have succeeded in restoring one to such an extent that she can attend the ordinary public school course in Philadelphia, and another girl, 7½ years, from Shenandoah, now under treatment by me, has within the past few weeks given marked proofs of hearing, while at the same time she has learned to speak several words fairly plainly. Her facial expression and manner has become transformed from that akin to an idiot to a degree of intelligence. This has been accomplished, too, after she had been discharged from a deaf and dumb institution for the training of lip speech, on the ground, as I understand, that the child's brain was weak and inclined to be idiotic, and it would be useless to attempt to teach her. So far, in nearly all the deaf mutes placed under my charge, I have been able to develop some hearing, provided the caretakers followed my instruction. I consider the ear masseurs the important element in the treatment. It was with the conviction that my massage apparatus had helped me in my ear work that I presented the machines to the medical public some three years ago, and with the knowledge of the successful results obtained I have continued their use, modifying them as experience suggested, and I again present them here at this meeting as a method which opens up an entirely new field of ear treatment, with new possibilities not only for preventing the bad effects of ear inflammations, but for modifying and overcoming the results of such cases as have been neglected or have developed into chronic ear thickenings, membrane retractions, ossicular unions and sluggish nerves.

Dr. W. T. ENGLISH of Pittsburg read a paper on

THE ELEMENT OF FEAR IN HEMOPTYSIS.

He assumed that the extent of the fear and the neurotic perturbation are out of all proportion to the amount of blood expectorated and can not be interpreted except through the language of the emotions. After citing a number of cases exemplifying the fear element in hemoptysis he argues that the special study and treatment of this element is essential to success in the treatment of hemoptysis generally. To quiet the fear and the resultant neurotic tumult is as essential to the welfare of the patient as to cause a cessation of the blood spitting.

In hemorrhages of this character quiet is of first importance. This quiet can not be secured simply through enforced inactivity. We need calm which will diffuse itself with sure celerity through the nerve centers and plexuses, that will reach with its message of peace the remotest fiber of the nervous organism and restore the coördinations that have been lost through the element of fear as exemplified in hemoptysis. This rest is available through the hypodermic use of a decisive dose of atropia. Until this tranquility is secured all treatment will be experimental. It quiets the tumultuous demeanor of the central cardiac organ and restores its wonted rhythm. The unstable behavior of the peripheral vessels in the general circulation, as also in the pulmonary area, is replaced by a placidity that is at once restful and restorative. This quiescence is distributed equably and with promptitude and it is in this special direction that the efficiency of the atropia lies. It quickly and surely puts to rest the emotional elements that otherwise might continue indefinitely.

Moreover, the fact that atropia is rapidly diffused and quickly eliminated adds to its value in these cases. It becomes the duty of the physician to adjust the treatment to the element of fear as well as to the hemorrhage. If the hemorrhage is abundant the dosage should be large enough to paralyze the peripheral vasomotor nerves and thereby lessen blood pressure, causing a general determination of blood to the surface and thus relieving the vessels from which dangerous hemorrhages emanate. If the hemorrhage be small and the emotional manifestations, as exemplified through the element of fear be great, the dosage should be proportionate to the fear element and therefore must be generous. If there is a medium exhibition of both elements the treatment should prevail as in excessive hemorrhages. When the hemorrhage and emotion are at variance in any degree, that element which has the ascendency indicates the treatment as to the urgency, dosage and frequency of repetition. Fear must be judged of by its type, its intensity and its persistence, as also its immediate and remote influences, with the same caution as the hemoptysis.

Dr. I. C. GABLE of York read a paper entitled

APPENDICITIS WITH CASES.

The profession are more divided as to this operation perhaps than any other. When mild it may subside with no marked symptoms. The ulcerative form is seldom if ever from a primary catarrhal condition. Ulceration is due to fecal concretions and rarely to foreign bodies. The infective form may result from either. Recurrent and relapsing are not interchangable terms. Recurrent are those which repeat at considerable intervals; relapsing when the attacks are so close as to be almost continuous. In the first it would appear that there had been a recovery from the peritonitis while the appendicitis had continued. In relapsing there is no complete recovery. In mild types, starvation in its therapeutic sense, with such other as indicated. Delay is justifiable to avoid operation in absence of acute symptoms. He gave the details of some cases operated upon with success, others where operation was declined.

The officers for the ensuing year are: President, Dr. W. Murray Weidman, Reading; secretary, Dr. C. L. Stevens, Athens. The society adjourned to meet at Lancaster the third Tuesday in May, 1898, where the 50th anniversary will be celebrated, that being the place where the society was organized in 1848. About 300 members were in attendance. The afternoon of Thursday was occupied by an excursion on the Monongahela River by steamboat, and a visit to the Carnegie Plate Armor works.

Association of American Medical Colleges.

Pursuant to a call issued April 27, the Association of American Medical Colleges met in the Hotel Walton, Philadelphia, May 31, at 10 A.M.

Dr. J. M. Bodine, president, in the chair. Thirty-four colleges were registered. On motion of Dr. Larrabee, the Association resolved to adjourn to meet at the College of Physicians at 4:30 P.M., Tuesday, and thus secure the attendance of delegates known to be on the "JOURNAL train." On motion of Dr. H. O. Walker a committee of three was appointed to consider the report of the Committee on the Codification of the Constitution. The Chair appointed Dr. J. W. Holland of Philadelphia, Dr. C. W. Kelly of Louisville and Dr. John Heffron of Syracuse on this committee. After some informal discussion the Association adjourned.

On Tuesday afternoon the Association met in the lower lecture room of the College of Physicians. Twenty-three colleges were represented, with the President, J. M. Bodine, in the chair. The minutes of the Atlanta meeting were read and approved.

The President's Address was then read and, on motion of John B. Roberts, ordered printed.

The Committee on Amendments to the Constitution then reported by its Chairman, Dr. J. W. Holland. After receiving the report each article of the constitution was taken up separately and then adopted as a whole as given in JOURNAL, Vol. 28, pp. 796–7, corrected as follows:

ARTICLE II, SEC. 2. The college applying "shall be elected to membership if it receives the favorable recommendation of the Judicial Council and the favorable ballot of a majority of the colleges represented at the meeting."

ARTICLE III, SEC. 2. "In place of this examination, or any part of it, colleges, members of this Association, are at liberty to recognize the official *certificates of reputable* literary and scientific colleges, academies, high schools and normal schools, and also the medical student's certificate issued by any State examining board covering the work of the foregoing entrance examination."

ARTICLE III, SEC. 6. "(*b*) To graduates and students of colleges of *homeopathic* or *eclectic* medicine, as many years as they attended those colleges, provided they have met the previous requirements of the Association and that they pass an examination in materia medica and therapeutics. (*c*) To graduates of reputable colleges of *dentistry*, *pharmacy* and *veterinary* medicine, one year time."

ARTICLE V, SEC. 2. . . . "The seven members constituting the *Judicial Council* shall serve three years each. Vacancies by expiration of term shall be filled at the annual election of officers. Vacancies by death or resignation shall be temporarily filled by the surviving members of the Judicial Council."

The By-laws were unamended.

After some discussion, on motion of Dr. John B. Roberts, it was declared the sense of the Association that this constitution was in force for this time forward.

The Secretary's report was then read and approved.

Dr. J. P. Lord moved that suitable resolutions on the death of Dr. Perry Millard be prepared and spread on the records of the Association. The President appointed a committee for that purpose consisting of Dr. J. P. Lord, Dr. C. W. Kelly and the Secretary. This committee afterward reported as follows:

WHEREAS, We are reminded by the absence today of one who had been among our most active members, Dr. Perry H. Millard; one who was untiring in his devotion to the interests of this Association and the cause which it represents. In his death the Association has sustained the loss of its best friend, most earnest and faithful worker and wise counselor; the profession a true friend and exemplar; and this Association deplores his untimely death; therefore

Resolved, That we make this sentiment of our regard for him a matter of record; that it be placed among the minutes of our proceedings and that a copy be furnished his family.

The report of the Committee on Course of Study was read by title and ordered printed.

The recommendations and report of the Judicial Council were then read and approved.

The Medical Department of the University of Niagara was elected to membership.

The following named officers were elected for the ensuing year:

President, Dr. J. W. Holland of Philadelphia.
Senior Vice-President, Dr. H. O. Walker of Detroit.
Junior Vice-President, Dr. Thomas Opie of Baltimore.
Secretary and Treasurer, Dr. Bayard Holmes of Chicago.
Vacancies in the Judicial Council were filled by reëlection.

(Signed) BAYARD HOLMES, Secretary.

JUDGMENT AGAINST THE MEDICAL COLLEGE OF OHIO RESUBMITTED TO THE COUNCIL TO FIX PENALTY.

WHEREAS, By the unanimous decision of the Judicial Council of the Association of American Medical Colleges it was heretofore adjudged on May 31, 1897, that, "After due examination of all the evidence before us, and the statement of Prof. James G. Hyndman, secretary of the faculty accused, we find as follows: That the John E. Yarling specified in the charges was actually graduated at the said Medical College of Ohio as a Doctor of Medicine on April 9, 1897, and that the said Yarling matriculated for the first time in the Illinois Medical College in April, 1895, all of which is in violation of Section 5 of Article III of the Constitution of the Association of American Medical Colleges."

Now, therefore, as it appears from the action of the Association of American Medical Colleges held at Philadelphia on June 1, 1897, that the Judicial Council must fix penalties in the determination of all such matters as involve a violation of the constitutional requirements of the College Association, the Judicial Council decrees that: The provisions of Section 5 of Article III of the Constitution embody fundamental principles which must be held sacred and inviolate, and that the said Medical College of Ohio has forfeited its membership in the Association of American Medical Colleges.

The language of the Constitution is mandatory; Section 5 of Article III reads as follows: "Candidates for the degree of Doctor of Medicine shall have attended three courses of graded instruction of not less than six months each, in three separate years," prior to 1899. The Council has heretofore held that "no student can be admitted to a second course of instruction within twelve months from the date of the beginning of the first course," by any college holding membership in this Association, and that "no amount of previous study can be accepted in lieu of any part of any one of the three courses of graded instruction provided for in Section 5 of Article III of the Constitution." (Signed) DUDLEY S. REYNOLDS.
STARLING LOVING.
JOHN B. ROBERTS.
RANDOLPH WINSLOW.
VICTOR C. VAUGHAN.
JAMES H. ETHERIDGE.

I certify that this is an exact copy of the original, signed by six members of the Council. L. B. BALDWIN, Clerk.

Fifteenth German Congress of Internal Medicine.

Berlin, June 9-12, 1897.

In his opening address von Leyden called attention incidentally to the danger that general therapeutics may be neglected in the modern development of specialism, and Virchow observed that for fifty years he had fought specialism, but had gradually become convinced of its utility, while still recognizing its menace to general science. This peril must be borne constantly in mind and no fundamental divisions allowed in spite of the numerous ramifications. He added that pathologic anatomy is the one thing common to all special branches, and yet the pathologists are on the point of organizing a special congress!

The first subject, "Chronic Articular Rheumatism," was presented by Professors Bäumler and Ott. After urging a more exact definition and limitation of the word rheumatism, the former reviewed the bacteriologic investigations: Schüller's bacillus (1892), and the small dumb-bell bacillus found by Bannatyne and Wohlmann in twenty-four out of twenty-five cases (1894), confirmed by Blaxall as a small, short, pole-staining bacillus found in the synovial fluid in eighteen cases of polyarthritis, and absent in other forms of articular affections. He succeeded in cultivating it on the usual media, except gelatin, but did not find it pathogenic in experiments on animals. Bäumler urged further research in this line. The preponderance of female subjects suggests the possibility that the genital mucosa is the route traveled by the exciting agent. He warned against the abuse of morphin, stating that the syringe should never be given over to the patient. He added that the term, *arthritis pauperum*, is incorrect: the well to-do are

affected as often as the poor. Potassium iodid was recommended by Krönig, v. Noorden and others. Davidsohn recommended "fango," Battaglia mud. V. Noorden has been testing the lemon cure in this disease, and finds that it does no harm, and even produces a transient subjective improvement, but has no effect on the metabolism. He advises antiobesity treatment, as it often leads to increased mobility of the articulations. Schüller uses an emulsion of iodoform and guaiacol injected locally. Sixteen out of twenty-nine cases thus treated were completely cured. The injections are painful, and must be repeated in large joints three to seven times. Complete cure sometimes follows one injection in the case of small articulations. An operation is more rapid in its effects. He has operated sixteen times, eleven on the knee, with complete restoration of mobility. No relapses. Improvement perceptible in a fortnight.

Professor Ott in his address signaled the importance of trauma, dampness and lack of light and air in the production of the disease; recommended woolen clothing and especial attention to the diet, with meat for a foundation, combined with eggs, fish, vegetables, butter and cheese, especially milk. Water the best beverage; alcohol and carbohydrates much restricted; moral depression avoided; a journey to be advised in some cases. Treatment should be prompt and meet every stage of the disease, which should be carefully watched over even long after convalescence. Each acute symptom must be hastened past with every possible means: Fever by repose in bed and restricted diet; local pains and swellings with Priesnitz compresses, liniments or salves with opiates or injections of morphin. Absorption is accelerated by painting the surface with tincture of iodin. Puncture is also useful in severe swellings, and elastic bandages. He adds that the success of the salicylic preparations in acute articular rheumatism is only equaled by their ineffectiveness in arithritis deformans, not only at first, but in the exacerbations. Some find salol beneficial, others antipyrin, acetanilid, phenacetin, phenocoll and malakin. When there is more or less swelling of the joints, without much loss of mobility or dislocation of the ends, external treatment is indicated that will favor absorption, such as tincture of iodin and ichthyol, which sometimes score a success. When all the symptoms of acute or subacute inflammation have subsided, baths should be recommended. They should be suspended whenever inflammatory symptoms reappear, until they pass away again. In all baths the main point is heat. This can be wonderfully attained by the new partial steam and hot air baths (Tallermann's 104–119 degrees C.); mud baths produce a mechanical stimulation of the surface in addition to the heat, and partial mud baths for weak patients have been found useful applied as hot mud compresses, with occasionally surprising success. The simple hot springs, such as at Teplitz, Gastein, Warmbrunn, etc., are especially adapted to patients with much nervous excitability. The success of sulphur baths is probably due to the heat. He also recommends the hydriatic processes, which combine hot and cold baths, as an advisable supplement to a course of hot baths, to tone up the system debilitated by the effects of the heat. They also render it less liable to relapses. In the raw seasons it is better to resort at once to a hydriatic course. He also advocated massage as an important aid in the treatment, but if the capsule is already contracted, massage can not restore it. Active and passive movements should also be undertaken to prevent stiffness; especially useful in this respect is the Zander apparatus. The climate for persons affected with polyarthritis deformans should be warm, even, dry and sheltered from the wind, with hot springs convenient. These conditions are fulfilled at Battaglia in northern Italy for the spring and fall, Ischia, where there are natural hot springs and also natural hot sand baths, and Algiers. Medication should aim to strengthen and tone up the system: Iron, quinin and cod liver oil. The iron is best administered as syrup ferri iodat., which is especially effective in younger patients. Singer has cured one typical case of acute rheumatism with intravenous injections of sublimate.

Program of the Berlin Lepra Congress.

October 11–16, 1897.

GERMAN EMBASSY, WASHINGTON, D. C., May 21, 1897.

Dr. Albert S. Ashmead:—Referring to my letter of March 22 last, I have the honor to enclose a program of the International Conference of Leprologists, to be held in Berlin, Germany, from October 11 to 16 next. You will oblige me by stating its receipt. Yours very truly,

BARON THIELMANN, Ambassador of Germany.

IMPORTANT LEPRA CONFERENCE WHICH WILL MEET IN BERLIN, OCTOBER, 1897.

More and more of late the interests of scientific circles have been directed to the question of the spreading of leprosy. The public attention also has occupied itself actively with this subject. Therefore it seems to us, that now the favorable moment has come to lead the work by unanimous consent into the right grooves. We shall stand for this, that the disease, which everywhere is in a slow but contstant condition of expansion, be stopped by suitable measures. We are of the general opinion that anything good in this field can only be obtained by a strict program, whose object and means would be as comprehensible as possible. In this sense we have the honor to make an invitation to a discussion on the lepra question to be held at Berlin the month of October, 1897. Further details will be communicated hereafter. The preparative works have been undertaken by the undersigned.

E. EHLERS, Copenhagen.
G. ARMAUER HANSEN, Berlin.
R. KOCH, Berlin.
O. LASSAR, Berlin.

PROGRAM.

The beginning of the sittings is proposed to be for the time from Monday, October 11, to about Saturday, October 16. The deliberations will take place in the meeting hall of the Imperial Board of Health, 19–20 Klopstock Strasse, Berlin, N.W., which the Imperial government has placed at our disposition for that object. The time of the plenary sitting is from 11 A.M. to 2 P.M., in order to leave the members of the conference time for other consultations and possible sittings of commissions. An exhibition of all the objects interesting for the investigation of leprosy will be connected with this meeting. The object of the conference is, in the first place, a scientific discussion of the leper questions as well as of the methods recommended for the limitation and suppression of the disease within the limits of possibility. The result of the debates shall be formulated in such a manner that on the foundation offered by them further steps may be taken eventually for legislation, administration and by international arrangements. The scientific material in hand will be analyzed and sifted by the conference in such a manner that the governments of all the states interested may be enabled to take appropriate measures. An international scientific understanding is therefore the real task of the lepra conference and state medical tendency, the larger point of view.

In order to accomplish these objects as much as possible all lepra authors, known as such, are invited to attend. As a large number of these gentlemen have already promised to come the success of the enterprise is assured. The manner of the work is in common about as follows: The questions are previously prepared by reporters and as far as the object requires or permits it provided with discussable theses. These elaborations, written in German, English or French languages, which most of the participants are likely to understand, are printed as soon as they have been delivered to Prof. O. Lassar, 19 Karlstrasse, Berlin, N.W., and continuously sent to all the gentlemen who have promised to attend. In this manner everyone is enabled to choose for himself a position for the discussions and to advocate or combat resolutions. The printed works are not used for lectures. Thus all the time and labor will be spared for the meeting without putting any constraint to the expressions of opinions and literary activity of the reporters. The reports sent are in conjunction with the record of the meeting to form a permanent literary monument of the congressional work. The printing of them is, therefore, for the present considered as a confidential manuscript and not otherwise published. Tables and diagrams will be reproduced, as far as it is possible.

As themes we can at once mention the following, barring possible changes, for which the gentlemen whose names are also mentioned have offered themselves. As a matter of course, every correction or addition which the expected participants, learned societies, or state governments will be received with pleasure and is even requested. The committee is ready to meet, as much as possible, any further proposition of this kind. It also will be thankful for everything done personally or materially in the interest of the Leprosy Congress.

THEMES.

1. The place of leprosy among the infectious diseases: Dr. R. Koch.
2. Pathologic anatomy of leprosy, Dr. Rudolf Virchow, Berlin.
3. Histology of leprosy, Dr. P. G. Unna, Hamburg.
4. How far are we justified in considering the lepra-bacillus as the cause of the disease? Dr. A. Neisser, Breslau.

5. The attempts at culture of the lepra-bacillus, Dr. B. Campana, Rome.
6. Etiologic rôle: *a*, of heredity; *b*, of transmissibility, Dr. E. Besnier, Paris.
7. Alimentation and leprosy, Dr. J. Hutchinson, London.
8. The question of inoculability, Dr. H. Köbner, Berlin.
9. Does leprosy go directly from man to man, or does it go indirectly? Dr. Lie, Bergen.
10. The patent consequences of the emigration and immigration for the leprosy question, Dr. E. Arning, Hamburg.
11. Leprosy returning from the colonies into the great cities of Europe, Dr. Hallopeau, Paris.
12. General view of the condition of therapy, Dr. O. Lassar, Berlin.
13. Leprosy of the eye, Dr. Borthen Drontheim.
14. Visceral leprosy, Dr. Doutrelepont, Bonn.
15. Anesthetic forms, Dr. Looft, Bergen.
16. Relations between syringomyelia, Morvan's disease, Aïnhum and lepra, Dr. Zambuco Pacha.
17 Optional or obligatory isolation, Dr. Armauer Hansen, Bergen.
18. The best arrangement of leprosies, Dr. O. Petersen, St. Petersburg.
19. Foundation of lepra societies, Dr Kirchner, Berlin.
20. Nomenclature, Dr. Dehio, Dorpat.
21. Historicals of leprosy, Dr. E. Lesser, Berlin.
22. Geography of leprosy: 1, general consideration, Dr. Kübler, Berlin; 2, Norway, Dr. Hansen; 3, Sweden, Dr. Sederholm; 4, Denmark and Iceland, Dr. Ehlers; 4, Russia, Dr. Pospeloff, Moskow, and Finland, Dr. Fagerlund of Helsingfors; 6, Turkey, Dr. von Dühring, Constantinople; 7, Greece, Dr. Rosolimos, Athens; 8, Bulgaria, Dr. Bogumil Berin, Sofia; 9, Roumania, Dr. Kalindero, Bucharest; 10, Hungary, Dr. Schwimmer; 11, Austria, Dr. Kaposi; 12, Germany, Dr. Blaschko, Berlin; 13, Italy, Dr. Pellezzari, Florence; 14, Spain, Dr. Zuriaga, Valencia; 15, Portugal, Dr. Seferino Falcao, Lisbon; 16, France and colonies, Dr. Feulard, Paris; 17, England and colonies, Dr. Phineas Abraham, London; 15, Holland and colonies, Dr. Broes Van Dort, Rotterdam; 19, Belgium and Congo, Dr. Bayet, Brussels; 20, Canada, Dr. A. C. Smith; 21, United States, Dr. White, Boston; 22, Central America, vacant, 23, West Indies, Dr. Numa Rat, St. Kitts; 24, Ecuador, vacant; 25, Colombia, Dr. Carrasquillo, Bogota; 26, Chili, Dr. Valdes Morel, Santiago; 27, Argentina, Dr. Sommer, Buenos Ayres; 28, Brazil, Dr. Silva Aranjo, Rio Janeiro; 29, Madeira, Dr. Goldschmidt, Paris; 30, South Africa, Dr. Impey, Cape Town; 31, Dutch Africa, Dr. Schön, Berlin; 32, Egypt, Dr. Engel Bey, Cairo; 33, China, Dr. Kerr, Canton; 34, Japan, Dr. Kitasato, Tokio; 35, Oceanica, Dr. Mouritz, Hawaii.

The Exhibition which is connected with the Lepra Conference will be held in the rooms of the Imperial Board of Health. It embraces exclusively scientific objects and is divided into the following sections: Anatomy and morphology, micrology, photography, cartography, bibliography. We pray that this Exhibition may receive abundant contributions. In the enclosed formulary please find the provisional indications of the sendings expected. Government Councilor, Dr. Köbner, member of the Imperial Board of Health, has undertaken the direction of the Exhibition.

Formulary:—The undersigned offers for the Exhibition of the Leprosy Conference for the group: 1. *Anatomy and Morphology.* 2. *Micrology.* 3. *Photography.* 4. *Cartography.* 5. *Bibliography.* The desired space is . . square meter table surface, . . square meter wall surface. The objects are sent by post, by freight, and will arrive at the latest September 15.

Signed, ...

PRACTICAL NOTES.

Paralysis of the Forearm from Bicycling.—Dr. Destot has published in the *Gazette des Hôpitaux* an account of his own experiences. An abstract of the paper appears in a recently published number of the *Neurologisches Centralblatt.* After a long ride he experienced paresthesia in the fourth and fifth fingers, with impaired sensibility and paresis in the interossei, lumbricales, and the adductor pollicis. The paresis was followed by distinct atrophy in the affected muscles. He considers the affection to be the result of pressure upon the branches of the ulnar nerve, aggravated, doubtless, by the vibration occasioned by bad roads. He also considers that predisposing factors existed in the softness of the skin of the hand and in the exhaustion of the muscles and the consequent loss of protection to the nerves lying in or under them.

Arsenious Acid Again brought out as a Cancer Cure.—The *Semaine Méd.* of May 1 contains photographs of three persons radically cured of cancer of the nose, one a woman of 84, with views of microscopic sections of the neoplasms, showing their character. The only treatment was painting the surface with a solution of arsenious acid 1 gram, to 75 grams each of ethyl alcohol and aq. dest. (reducing this amount to 40 grams each, as the eschar grows thicker). A little fresh blood is drawn to the surface, which is then painted with the solution, and left exposed to the air if possible. An extensive cancer requires daily painting for two to three months before the cnre is complete. Cerny and Trunecek conclude their report with the statement that they have not succeeded in curing carcinoma of the mamma with this treatment, but that all surface cancers are relieved and rendered almost entirely odorless with it. It is perfectly harmless, as has been shown by cases of cancer in the buccal cavity treated for months without any evidences of arsenic intoxication, and it is indicated in every cancer of the skin without ganglionic indurations.

Uncontrollable Vomiting in Pregnancy, Continuing after the Death of the Fetus.—Fabre notes a case of uncontrollable vomiting in a primipara, 18 years of age, who had previously suffered from anemia and hysteria. The vomiting began at the fifth month of pregnancy and had continued up to eight and a half months, with increasing weakness. The fetal heart was not to be heard, yet the vomiting continued and medicinal means were of no avail. It was therefore decided to induce premature labor, and Krause's method (introduction of a bougie into the uterus) was employed. On the day before this was done the patient was so weak as to require injections of caffein and ether and 200 g. of artificial serum into the subcutaneous tissue of the abdomen. Twelve hours after the introduction of the bougie into the uterus a dead female fetus was delivered by means of forceps. The vomiting still continued and the patient died twelve hours later. The only lesions found at the necropsy were those of recent gastritis. The case is interesting, for the death of the fetus was not followed by a cessation of the vomiting, a circumstance probably due to the fact that here pregnancy was not the sole factor, but had superadded to it the pathologic state of the stomach.—*British Medical Journal.*

Ligature of Carotid Arteries for the Control of Hemorrhage due to Pharyngeal Abscess.—At a recent meeting of the Royal and Medical Chirurgical Society Clutton (*Brit. Med. Jour.*, May 29, 1897, p. 1349) reported the case of a victualer, 28 years old, with a history of having bled rather profusely the day before from an abscess in the pharynx above the right tonsil. After the lapse of a few days the soft palate was divided for the purpose of a complete examination of the abscess. A hole was found passing through the wall of the pharynx into the tissues of the neck. This opening was enlarged and the cavity plugged with cyanid gauze, as it was thought from the character of the hemorrhage that the bleeding might be from the internal jugular vein. During the night following this operation, the man bled so furiously that no doubt could be entertained as to the hemorrhage being from a large artery, probably the internal carotid. On the following day the bifurcation of the common carotid on the right side was exposed and an animal ligature applied by means of a stay knot to the common carotid and its two branches. A saline infusion of two pints was given whilst the wound was being closed with sutures. The wound in the neck healed by first intention, and the abscess cavity in the pharynx was found by digital examination to have closed some time later. There was no further hemorrhage after ligature of the carotid arteries.

The Treatment of Wounds of the Air-passages.—Platt (*British Medical Journal*, May 8, 1897, p. 1149) reports ten cases of sui-

cidal wounds of the throat in which the air-passages were injured and appends the following summary: 1. Suicidal wounds of the throat should be treated by primary suture in all cases in which the general condition of the patient permits. 2. Antiseptic precautions are most important. 3. If necessary, chloroform should be administered, and is perfectly safe. 4. Divided muscles should be sutured, and in bringing together the edges of the skin the inversion caused by the platysma muscle should be corrected. 5. The wound in the air-passage should be completely closed. 6. In many cases it is quite safe to dispense with the use of a tracheotomy tube. If a tube be deemed necessary, it should not be introduced through the suicidal wound in the air-passage, but through a fresh vertical cut at a lower level. 7. Silk is the best material for suturing the larynx or trachea. 8. During the after-treatment it is unnecessary, except in certain special cases, to feed by a tube or by the rectum. 9. If the foregoing methods of treatment be adopted, not only will a large proportion of even dangerous and extensive wounds of the air-passages recover, but the period of recovery will be greatly shortened, the patient will not be exposed to the same risks of secondary inflammatory complications, and he will be much less liable to the occurrence of permanent stenosis of the trachea or the formation of an ærial fistula.

Successful Removal of Brain Tumor with Permanent Recovery.—Ziehl and Roth (*Deutsche medicinische Wochenschrift*, May 6, 1897, p. 297) have reported the case of a man, 60 years old, who, in the midst of perfect health, was suddenly seized with a peculiar rigidity of the thumb and index finger of the right hand, followed by loss of consciousness for several minutes, but without twitching or convulsion. With the return of consciousness vomiting took place. The gait was somewhat staggering, but there was no paralysis. On the following day the patient had returned to his usual health. Rather more than six weeks later the man was seized with transient tonic followed by clonic spasm of the right hand, without loss of consciousness. After another interval of about the same duration he was awakened at night by severe headache and found himself paralyzed on the right side. In the course of two weeks the palsy of the lower extremities had receded to such a degree that the man could walk, while that of the upper extremities subsided rather more slowly. From time to time, however, the right upper extremity was the seat of clonic spasm, always beginning in the thumb and index finger. At times the entire right side of the body was involved. These attacks were followed by headache, which was absent in the intervals. A small area of tenderness was detected in the right parietal region, which subsequently became edematous. No ophthalmoscopic changes were found. It was learned that the patient had had a chancre at the age of 23 years, but secondary symptoms had not been observed. Two or three years before coming under observation he had fallen and struck his head. The use of potassium iodid was unattended with relief, while mercurial inunctions were followed by amelioration of the headache following the attacks of loss of consciousness, although without effect upon the attacks themselves. Memory beginning to fail and the general condition to suffer, trephining was decided upon. Accordingly the motor area for the right thumb and index finger was exposed. The bone was found hard and dense and covered on its surface by hyperostoses and osteophytes. The dura was covered with a brownish-red mass resembling granulation tissue, a portion of which was adherent to the overlying and eroded bone. The adventitous material was removed, together with the involved bone, and the wound was tamponed and closed. Histologically the material was found to be constituted of round cells. The surgical progress of the case was uncomplicated, but the convulsive attacks recurred, and finally the condition of the patient became so aggravated that a second operation was undertaken at the site of the first, the dura being now opened and a collection of material similar to that found originally removed. This, on microscopic examination, proved to be an angio-sarcoma. The operation was followed by right hemiplegia and paraphasia, and impaired sensibility in the right arm. Later, however, progressive improvement set in, with almost complete restoration of function, and this condition was still present more than two years after the second operation.

Two Cases of Brain Cyst, with Operation, and Recovery in One.—At a recent meeting of the Boston Society for Medical Improvement two interesting cases of brain-cyst were reported, in both of which operation was undertaken, resulting in the one in recovery and being followed in the other by death. The first was reported by Cabot (*Boston Med. and Surg. Jour.*, June 5, 1897, p. 533) and occurred in a man, 23 years old, who at the age of 11 was struck on the top of the head by a heavy stick. At the age of 21 he first noticed occasional numbness at the middle of the right thigh upon its anterior aspect, associated with tickling, and recurring every three or four weeks. After rather more than a year these manifestations appeared almost daily and were soon attended with contractions of the anterior muscles of the thigh and twitching in the abdominal region. The leg became rigid and rotated back and forth involuntarily. In a short while a severe attack occurred, followed by a general convulsion and loss of consciousness. As in the other seizures, the movements in this began in the right thigh. The attack was followed by vomiting. Bromids only partially controlled the paroxysms; amyl nitrite was somewhat more successful. The attacks now began to be followed by a feeling of paralysis and numbness in the right leg and later also in the arm and face. Aphasia succeeded upon one attack. Surgical interference having been decided upon, a square opening was made in the skull over the motor area of the left hemisphere, and after an interval of five days the wound was reopened and the bulging and feebly pulsating brain exposed. The cortex presented a yellowish appearance toward the upper part of the opening. In this situation puncture was made with a trocar, and was followed by a spurt of brownish serum. A small opening was made into a cyst cavity about the size of a pullet's egg and possessing a smooth yellowish brown wall and extending deeply into the brain toward its center. On account of the size of the cyst and its probable simple non-malignant character it was decided to treat it by drainage, in the hope of thus obliterating its cavity. Several large strands of loosely woven silk were accordingly introduced and brought out through an opening in the middle of the dural and cutaneous flaps. The patient made a good recovery from the operation and was free from symptoms for two months, when the aura began to return, and soon the motor-symptom manifestations also, together with headache. Hearing and vision on the right side also became impaired. It seemed probable from the symptoms that the cyst in the brain was refilling, and, accordingly, some fifteen months after the primary operation, the wound was reopened. At once brownish serum made its escape through a yellowish area marking the site of the cyst. The walls of the cyst were now removed as thoroughly as possible and drainage was established temporarily by gauze, but later by glass. Considerable fluid escaped for ten days; the drainage-tube was kept in place for forty four days. For a time there were no further symptoms except on mental application, but subsequently even this became possible without serious discomfort. Some degree of paresis and sensory impairment persisted in the right lower extremity.

The second of the cases was reported by Elliott (*Ibidem*, p. 536) and occurred in a colored man, 59 years old, with a history of syphilis, who presented progressively increasing weakness in the right upper extremity, with convulsive movements. After exposure of the motor area of the left hemisphere and evacuation of a few drops of clear, rather viscid, brownish fluid by means of an aspirator, a knife was introduced by the side of the needle, giving exit to more fluid. Examination with a finger disclosed a cavity about the size of an English walnut, whose walls were lined with gelatinous-looking granulations. A drainage-tube was introduced into the wound and improvement followed. After nearly two months an attempt was made to obliterate the cyst by dissecting away the sloughing tissue and granulations lining its walls and packing the wound with gauze. In the course of fifteen days the sloughs had all come away and the cavity was lined with pale granulations. The patient remained under immediate observation only a short time longer, insisting upon returning to his home, where he died after an interval of three months. It is thought that the condition may have been a cystic glioma, although the surrounding brain appeared healthy.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, JULY 10, 1897.

THE INDIVIDUAL AND PHYLOGENIC GOOD OF PLAY.

An eminent actor, Mr. GEORGE GROSSMITH of London, narrating on the stage his impressions of the United States, remarked how seriously the average American takes his amusement, all the popular plays, music and songs being of a sad and melancholy nature. Not only must we plead guilty to this stricture of the genial and good-natured actor, coming as it does from a layman, but from the view-point of the medical man we must further admit that the physician of the present day does not need to be a profound student of the stigmata of degeneration to have noticed that the tendency to play is lacking in idiots of all classes, and that this defect is directly proportional to the degree of mental weakness. Since recent pathology has done much to throw light upon certain physiologic questions, the foregoing remarks would seem to furnish material for an obvious inference.

Besides the many homely adages of condensed wisdom bearing upon the importance of play and recreation, we know that the activity expended in the form of play is a normal and necessary manifestation that greatly concerns not only the development of the young but the preservation of the adult.

As the zoölogical scale is ascended, we find the play instinct in various animals. The ludicrous performances of spiders is more suggestive of incitation than of any other imaginable purpose, says ROMANES, while DARWIN writes with fulness and particularity upon the love antics of birds; and others since his time have commented upon the play impulse in discussing the theory of natural and of sexual selection, which he says acts throughout all the higher dominion of the animal kingdom. From childhood days we recall to mind the skip and play of young lambs that our primers used to tell about, as well as the rompish sports and certain festal pleasures occurring in the hey-day of life, and making red-letter days in our career, all of which go to show the existence of an impelling force inciting to the performance of actions not the result of reflection and manifesting themselves in the form of sport, frolic, gambol, recreation, pastime or amusement.

This deep-rooted instinct observed in primitive tribes, though differing somewhat in details of manifestation, is in fact only a differentiated form of the same tendency existing in civilized communities. For instance, the group of games to which our backgammon belongs is ancient and widely spread over the world, as the ancient Mexican game of *patolli*, which appears to be of Asiatic origin. Similar instances of mimetism and the like have been observed among the Eskimo of Behring Strait and the Chuckchis of Arctic Siberia, the latter of whom play football, a fact of interest in connection with the remark of the Duke of Wellington, who said that Waterloo was won on the ball grounds of England. The Chuckchis being the only tribe of Northern Siberia that has not yielded to Russia, the existence of football among them may be looked upon as suggestive of the incitation that prompts the manly pastimes of a vigorous race.

While additional instances may be cited, it seems unnecessary to say more in order to justify the position that the play impulse, deeply implanted in the race, is one of the motor activities evolved from the central nervous system, and that many of its manifestations are not only essential parts of life, but things that have a conservational tendency and make life worth living. Military and naval statistics may also be cited to show the disappearance of certain epidemic affections after rigid discipline had been relaxed and liberty to indulge in proper sport was allowed. Moreover, the recreative effect of change by breaking up monotony in the treatment of many nervous diseases, is so well known to physicians that some of them go so far as to recommend an occasional spree for the benefit of health, and HUFELAND even says that it prolongs life. A study of the relative longevity of English and American statesmen shows the average usefulness and longevity of public men in England to exceed that of the American by ten years. Most public men in England are among the best and keenest sportsmen; but with us it is quite different. Even General GRANT could not swim and did not care

to shoot or hunt, and the same may be said of nearly all the statesmen of the National Capitol. Imagine the effect on his constituents of one of our hayseed senators in a pink coat riding to the hounds, arrayed in a bicycle suit, or frequenting the golf links with the British ambassador.

Notwithstanding these well-recognized facts of sport and play, the deep interest that should be felt in the people's amusement still awaits a champion; and a philosophic study looking to the furtherance of the great cause of innocent recreation most fit for health, is yet a virgin science badly in need of an exponent. Moreover, we find among the various instances of fanatic folly many cranks and shampious who denounce anything like the manifestation of play or amusement as a wicked thing, because in their prudish and evil-thinking minds there still lingers the puritanic spirit which calls anything sinful that makes people feel happy. The time has come, however, when biologists and physicians may treat this apparently trivial and hitherto neglected subject with ordinary seriousness, and place the same on record.

Without enumerating the sports that improve the body and break up the vices of the mind, it may be said that just as long as mankind is endowed with the faculty of emotional expression, so will its demonstration in various forms continue to manifest itself. As a rule people must and will divert and amuse themselves, and nobody can prevent them. But in these days of excessive drive and over-pressure, when undue waste of vital energy shows itself to the clinical observation of the physician in the way of various nervous and brain diseases, the question of averting or mitigating such mischief comes to us as a serious problem.

The obvious solution lies in the encouragement of all innocent recreations as a compensating factor in the phenomena of life. Clearly, our people do not play enough. If we want to keep up the spirit of a race in which runs the blood of Robin Hood and the old Viking kings, the palestric element must enter into its pastimes. If we would hold the trident of Neptune and have a long run on the world's political stage, "the man behind the gun," as well as the political ruler, will be none the worse for having been trained in the manly school of rude play and rompish sport.

Therefore, we should do all we can to further the great cause of innocent sport and recreation that bring together men and women during leisure hours at such places as the tennis court, the hunt, the meet, the golf links. In the light of more humanistic ideals of the present day, we do not admit the ethical cogency that such amusements are wrong because they are worldly. We should strive to meet people with a simple word or two expounding "the gospel of relaxation," with a view to make life better and make human actions abler when prompted by the two great motor forces of life which incite in our subliminal self the source and spring of all human actions, namely, the preservation of the individual, and the continuance of the species.

THE MEDICAL MAN AND HIS MORALS.

The question has been raised, is the profession of medicine of such a nature as to ennoble those who follow it? Would the man who comes under its influence be the same as if he had not had this experience? It is not easy to determine this matter for each individual case, but if we consider medical men in their relation to the members of other professions, and the duties and obligations society thrusts upon them, as compared with what it expects of other men, we will find that certain facts are patent to show that there is a different standard of morals for the medical profession. And this standard if followed must influence the medical man for good.

But more than this, the every-day life of a healer of the sick is of such a peculiar character that it can not but exert a power for good on those who practice it.

Let us examine these premises more carefully. Society expects the minister of divinity to be as near perfect as it is possible for him to be; it expects him to be free from petty vices, to be honest, to be dignified; it in return respects him, accords him precedence in all its assemblies and public gatherings. The "cloth" will silence levity, will gain admittance without question, will be credited without doubt. Society places such men above others in the moral scale.

In a similar way, but to a less extent, the physician has the respect of society. In continental Europe the healer of the body has as dear a place in the minds of his patients as the healer of the soul has in the minds of his flock. No one can read the strong picture of the Scotch country physician drawn by IAN MACLAREN in "Beside the Bonnie Briar Bush" without instinctively feeling that it is a true one, and that the devotion of country people was real and not unusual. A life so spent, relieving suffering must surely react strongly on the mind and make it purer, nobler and higher than it otherwise would be. Society, as we said before, demands a certain seriousness of the physician; it demands wisdom, courage and quickness of perception, but more than this, it demands soberness. The man who is jolly, who is light-hearted, who is a clown, soon finds that such a temperament is not wanted in the sick room. It serves now and then, as when it whiles away the tedious hours of a primipara's labor, but the grave face, the thoughtful look, the gentle soothing and consoling tone is the most appropriate. Hence, as a class medical men *are* serious and sober.

The medical man again must be ever ready and on

the alert; he can not give up his nights to carousing, even though his patients see him not; the morning comes and with it stern responsibilities, eyes must be clear and hands steady.

Society likewise asks that its medical men have a certain mannerliness about them; they must not be fops, or dudes, but they must be dressed in a becoming fashion, they must be cleanly in appearance and habit. Lastly, society wants the physician to be above material greed. In some countries it is improper for a medical man to sue for the collection of a bill. Fees are considered as marks of gratitude and not as a compensation for services.

Even in our own country among many of the foreigners it is customary for the patient to slide the fee into the physician's palm as if it were a present, and it would be thought very unbecoming in the physician were he to "look the gift in the mouth," or complain as to the amount.

Society does not ask the butcher or baker to supply meat or bread for nothing, or even on credit, but what reproaches it would cast upon the doctor who would refuse to visit a sick patient because he had no means or because the patient had not paid his bill. In our commercial days and in the cities the doctor is becoming more like the business man, but somehow the public will not consider him in that light, and dislikes him if he practices business methods.

The doctor is asked to give his services freely to every charity "under the sun" and to feel himself honored in being accorded the privilege of so doing. But the teacher, the lawyer and the musician are paid for their services; yes, and the chaplain too.

So much for the demands of society compelling physicians by an unwritten law to behave differently from other beings. Now as to the medical Code and its demands. Every organization of men, from that of the association of robbers to that of the church, has its peculiar code of ethics, which serves to influence every member for the good of all. These codes are oftentimes more powerful in governing the conduct of men than the law of State or the opinion of society. In no organization does the code mean as much as in medical organizations. From the time of HIPPOCRATES down to the present day fraternal feeling among medical men has been a common virtue. The oath of brotherhood is taken in all lodges, in workingmen's associations, even in the society of thieves and pirates, but in medical societies it has a deeper significance. It strives here to abolish the law of competition. The ignorance and mistakes of a weaker brother, which in the natural evolution of things would destroy him, are through the Code of Ethics covered up by the stronger and abler brother. Where a word might destroy the confidence that it has taken years to gain, that word is seldom forthcoming. When the patient is impatient and endeavors to displace his medical attendant in an abrupt manner he is usually prevented from doing so by another physician, and the Code forbids the latter to in any way throw distrust upon the work of the former.

Again, the Code establishes a fraternal feeling by making it almost obligatory for one physician to treat the members of the family of another physician. Almost obligatory we say, though never considered in the light of an obligation but rather in the nature of a duty.

The Code sets the pace and though many feel themselves not bound by its articles, all strive to live up to its spirit. It serves to take the "fight" out of the medical man, to wipe out of him all traces of the competitive brute. The law of trade is "strive to conquer others, succeed by downing others, build up on the ruins of others." The law of the medical Code is "one for all and all for one. Succeed only with others, strive to aid others." Avoid competition, avoid contention.

Remember this is not a church commandment that is only believed in by the Sunday-school boys and girls, but a living commandment that is practiced every day all over the world wherever physicians are organized.

Such men who refuse to abide by this Code and grossly abuse it speedily find themselves ostracized and the profession refuses to recognize them as reputable physicians, even though the world accounts them a comfortable living and a certain confidence. The medical Code therefore would have a tendency to make men nobler who come under its influence and to make them better. Thirdly, the daily life of the doctor, what does it mean? Does it signify anything to come in contact hourly with the ills of all classes of the community? Not only the physical ills, but all the moral ills, all the mental suffering of hundreds of families. Can any one remain unmoved by the spectacle that any ordinary physician encounters daily? The young girl of promise about to graduate, stricken with phthisis; the only child of devoted parents dead after weeks of suffering; the breadwinner sick in his room with typhoid, his little ones and patient wife wanting the necessaries of life; the debauched husband killing his feeble helpmate by obliging her to be the mother of many children, or infecting her with virus picked up in the brothel; the woman pregnant for the first time, the months of anxious preparation, the final suffering, the happiness on the faces of all when in the midst of extreme agony the child is born. Such are the daily scenes of the active family physician, and it is inconceivable to us how they can fail to affect any man no matter how morally obtuse he may be, and affect him for good. The confidences of women, of men, of young people, are his; the life of the community—the inner secret life is as open to him as the sky and yet so sacred is this trust that seldom

do his most intimate companions know these secrets from his lips. In fact, a famous physician was but recently fined a large sum of money for divulging a secret he obtained in professional confidence, although he abused this confidence in order to prevent his own daughter from being made unhappy. Entrusted more often with important secrets than either the lawyer or priest, yet so great a reliance is placed in the morality of the doctor, that he is changed as the grocer is changed, often for the slightest reasons, and without fear that these secrets because of revenge will be divulged. The physician must never complain of his own troubles, he must give strength and consolation to the suffering, but he must not look for it from his friends. And yet when one sees how others bear their troubles and how great is the load that others have to carry, our own ills seem little indeed, and we learn to *bear* them without complaint.

Thus the daily life that a physician is obliged to endure, in close contact with disease, misfortune, misery, death, poverty and vice, we believe tends to ennoble him, to purify and strengthen him, to make him forbearing and forgiving, loving and patient.

Can any one visit daily a poor little sick child with the purpose of relieving its suffering, without learning to love it? And when at last it is well and gains each day in health and the worn-out mother pours blessings over your head and hails you as a veritable savior, can any one at such a time be cruel or mean? We doubt it.

Every one who studies medicine does not remain in the profession. A great number each year leave, and we contend that a few years' practice will drive out those who are evilly inclined, either making of them quacks and ostracized charlatans, vendors of nostrums or disreputable abortionists whom no respectable community recognizes, or it sends them over into other professions and trades.

All physicians are not angels. But what we mean is that having a certain moral foundation to start with, a man must become stronger and better as he is subjected to the experiences of a medical life. It is true that the profession of medicine offers certain temptations to do wrong which other occupations do not, and sometimes the physician makes ill use of the trust imposed upon him, but this is comparatively seldom, and when one considers the power a medical man has to do wrong and how many chances are open to him to commit crime, it is a wonder so few of the profession do become convicted criminals. It is asserted in some quarters that as the struggle for existence grows more severe more of the medical fraternity will be compelled to do wrong, will in other words degenerate, will perjure themselves for expert fees, will perform abortion, play the rôle of charlatan, etc.

This remains to be seen. Strong social forces are at work to oppose the competitive spirit and the situation may change before many moons, the struggle being lessened or done away with entirely.

Some may say that the physician is no better at heart than other people, it is only the fear of the law, the fear of being ostracized by his brethren and the fear of pecuniary loss which keeps him in the beaten path, and that when he can violate the Code without being discovered he does so; that he is hypocritical and apt to pretend knowledge of things he is ignorant of and that he ascribes to his own powers effects which are in all probability the results of natural causes.

Such criticisms are to some extent true, but they fail to affect the general statement; they rather strengthen it because what is thus condemned in the physician is permitted to the merchant and tradesman. Whether men abstain from evil from fear or because they love the right, the abstinence in itself produces changes which are lasting. And physicians, because they are compelled to lead such lives, must in time become changed so that what was once compulsion becomes natural and automatic.

THE CRITERIA OF SENILITY.

It is not infrequently the duty of physicians to decide upon the disqualifications from age, but he would be a rash medical authority who would formulate a general rule as to the exact period in life when all men should give up active pursuits and be considered as unfit for the ordinary duties of business or professional life. It is true that senile changes occur in perhaps a majority of those that reach any advanced age that disqualify them to a greater or less extent, but there is no uniformity as to this and it is impossible to lay down any law that is universally applicable. MOLTKE at past the age of 70 was the organizer of the most successful great campaigns of modern times, and GLADSTONE at a still greater age is influential and active to a degree surpassing most younger men. These are prominent instances, but they are typical of many less prominent ones, and it would be hard to say that there is any essential reason why a man may not be as good for counsel and as mentally active at 70 as he is at 50. Many men are not, it is true, and it would be an excellent thing if most men could retire at that age to a well-earned leisure and ease. This is not the case, however, with very many, and there are others still whose retirement would be a public loss.

While our profession has never fixed the period when senility can be said to disable, legislative and and judicial authorities have been more willing to attempt it, and it has been legally decided in at least one State of our Union that after the not very excessive age of 66 a man is entitled to at least the privileges and exemptions that old age should be allowed, no matter what may be the bodily vigor or the capacity

for mental work. It is a natural and proper thing that a certain age should exempt from active military service, though it is notorious that the fixed age of retirement of army officers seldom is willingly accepted by the individuals, who generally, and often correctly, believe themselves still capable of good service. There are other reasons, however, than their disability for this limit and it is likely to stand, especially as the government can still claim their services in emergency. There are other departments of the public service where there is no apparent age limit, and where senility, understanding by this the mental failure of old age, can be most serious in its consequences. It is a curious fact, moreover, that judges who give the decisions as to the age limit, themselves, habitually pass beyond the limit they set, while still in active life. Our supreme courts are largely made up of old men, and it seems to be one of the facts of human experience that courts that possess the highest reputation and authority are chiefly found among those that are thus composed. Some time ago there were published in a leading English periodical some criticisms of the British higher courts of justice based on the ages of the judges who, it was claimed, showed senile infirmities that ought to disqualify them for their positions. English conservatism, or perhaps we should say English common sense, has not been affected by these criticisms and the British bench still contains its octogenarians. In this country, too, we have aged judges as well as aged physicians still in active exercise of their professional functions, but it is only on the higher judicial bench that this is frequent enough to almost be the rule, and there is here a possible danger that is worth considering, even if it be but slight. A business man or a physician is, as it were, constantly on trial, but a judge is the arbiter himself and his duties are not such as would be so seriously embarrassed by a physical incapacity that would disable one in another life pursuit. He is therefore protected to some extent against the disabilities of age, while some of its infirmities may be already upon him. Are aged judges always the best court of last resort in questions where senile incompetency is involved, even when especially qualified to interpret the law on other points? This is a question that may sometimes arise, and, it is possible, injustice has been done in some instances by the unconscious prejudice of old men against what they may feel to be a reflection against themselves. This is only an example of the medico-legal suggestions that arise in the consideration of this subject.

What is wanted is, as MINOT has said, a more complete study and review of the facts of senility and its effects, and some authoritative expression of the latest and fullest acquisitions of medical science in regard to it. It is not necessary to have a fixed period when a man can be said to be aged; some men are older mentally and otherwise at 50 or 60 than are others at 80. What we need is a better and fuller knowledge of all the general laws governing senile changes to and in the judgment of any individual case, a better body of scientific doctrine to govern the making and the application of general and special rules. This is one of the desiderata of modern medicine, and is equally needed for the guidance of courts and legislators, as well as for the better instruction of the public, who are at present inclined to exaggerate the disadvantages of age, often to the great hardship of the individual.

CORRESPONDENCE.

The Reorganization of the Public Hospitals in New York in 1895 and the Present Attitude of the Profession on the Subject.

NEW YORK, July 1, 1897.

To the Editor:—Two years ago the profession of this country was somewhat startled by the announcement that twenty-eight or more physicians who were serving gratuitously in the hospitals in the Department of Charities of New York were about to be set adrift without cause or pretext, except that the medical colleges clamored for their places. Surprise was heightened when it was made known that in spite of the protests of the veteran members here threatened with dismissal, and the repeated appeals of the local medical societies, the medical colleges defiantly proceeded to nominate physicians for places not yet vacated.

This procedure stirred the general profession into prompt and vigorous action, as it certainly seemed to involve the violation of one of the basic principles of the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION.

The County Medical Association of New York—that medical organization which has remained loyal to the AMERICAN MEDICAL ASSOCIATION—immediately appointed a committee on "The Relation of Physicians to Public Hospitals," which at once cited every member connected with any teaching corporation to appear before it and explain or justify their action. At the same time a circular notice was served on them, requesting that "they take no action in the nomination of candidates for positions not yet vacated until those about to be removed have had charges preferred against them, or have had an opportunity to be heard in their own defense." But this notice was in every instance ignored, when the work of retaliation was begun; the fiercest blows being first directed against the medical school which occupied the public grounds covered by Bellevue Hospital.

Here the avenging hand of retaliation was first felt, and the city authorities were forced to serve notice on Bellevue Medical College to move off public grounds, when the faculty moved across the way and for a week or two joined forces with the University Medical School. Next this Committee appeared before the Commissioners of Charities and demanded one-half of all the medical-staff appointments in the hospitals of New York for members of the profession at large, such appointments to be submitted by the medical societies. This proposition was received as acceptable and it was promised to be put into effect.

Matters finally came to a climax at the June meeting of the New York County Medical Association, when the following resolutions were presented by the Committee on Hospitals and adopted by the Association:

"1. *Be it resolved*, That after a thorough and impartial investigation by the Committee on Hospitals and Dispensaries of the New York County Medical Association, it now be declared the sense and belief of this Association that the reorganization of the medical service in the public hospitals in New York in 1895, as far as it concerned members of the medical profession, involved a violation of the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION, was vicious in principle and unjust in its effects.

"2. *Be it resolved*, That this Association deprecates and condemns the present system on which the medical management of the Department of Charities is conducted and with the advent of Greater New York unconditionally pledges itself to leave nothing undone to effect its early repeal."

Immediately on the passage of these resolutions all formal charges against members, it appears, were withdrawn.

At the time of this reorganization upheaval in New York the JOURNAL took the ground that it was a humiliating spectacle to witness the wholesale removal of medical men without any adequate justification or pretense.

It is now to be hoped that the voice of the profession has been heard in unmistakable terms, and that means may be devised by which an honorable and equitable adjustment may be arranged and the profession once more united.

JUSTITIA.

A Literary Endorser.

SPRINGFIELD, ILL., June 21, 1897.

To the Editor:—Allow me to call your attention to the following facts and enlist your coöperation in assisting this gentleman in a way that it seems to me he richly deserves from our profession.

One of the most glaring frauds of this decade has been an appliance known as "Electropoise," advertised in *Harper's Monthly* and other leading publications. The sale of this appliance has been fostered by the certificate given its promoters by one W. H. DePuy, assistant editor for some time of the New York *Christian Advocate*, whose official position on one of the leading religious papers of the country added some weight to his statements.

Recently I received an advertisement of "The University of Literature," edited by W. H. DePuy, A.M., D.D., LL.D., who I find is the clerical endorser of Electropoise. I wish you would call the attention of the 125,000 medical men in this country to the facts in this case, so that they may treat the compilations of the Rev. DePuy with the scant courtesy which they deserve. I send you copies of the advertisement of the Electropoise and University of Literature herewith.

Yours very truly, GEO. N. KREIDER, M.D.

PUBLIC HEALTH.

Rates of Mortality in 1896 in Thirty-two Large Cities.—From the last registrar-general's report (London) and from other official sources the following death rates for 1896 have been compiled. The cities are listed in the order of their reported low rates of mortality: Frankfort-on-Main, 15.6; La Hague, 16.3; Stockholm, 16.8; Copenhagen, 16.8; Edinburgh, 16.9; Cincinnati, 16.9; Genoa, 17; St. Louis, 17.3; Amsterdam, 17.4; Hamburg, 17.5; Berlin, 17.9; Brussels, 18.2; London, 18.6; Rotterdam, 18.6; Nice, 18.6; Paris, 19; Rome, 19.1; Turin, 19; Philadelphia, 19.8; Dresden, 19.9; Brooklyn, 20; Glasgow, 20.4; New York, 21.4; Vienna, 22.3; Boston, 22.5; Munich, 23.2; Venice, 25; Breslau, 25.1; Buda-Pesth, 25.4; St. Petersburg, 30.9; Calcutta, 33; Bombay, 41.5; Alexandria, 42.4; Cairo, 55.2.

Inroads of the Bacilli.—The report of the city bacteriologist of Syracuse, N. Y., shows that during the year 1896, 600 cases of suspected diphtheria were examined. Of these, 223 proved to be true diphtheria. In 411 cases given a secondary examination to see that the throats were free from the disease, as shown by the culture test, fifteen days were found to be the average time of persistence of the diphtheria bacillus in the throat. The greatest number of cases occurred in October. Of the 223 cases, 102 were those of children 5 years old and younger, and only 17 persons were over 20 years of age. In 150 cases the tonsils alone were involved. In 187 cases the diphtheria bacilli were found alone and in 36 cases mixed with some form of cocci. In 26 of the 36 cases that resulted fatally, antitoxin was not used, while the remaining 10 cases were moribund when first seen. Examinations for tuberculosis numbered 223, and of these cases 113 were found to have tubercle bacilli present.

Judgment of Board of Examiners Conclusive.—Another victory for the cause of higher requirements has been won. It is in the decision of the case of Van Vleck v. Board of Dental Examiners, which the supreme court of California handed down March 29, 1897. A writ of mandamus had been granted, to compel the board to issue to the petitioner a certificate entitling him to practice dentistry. But the supreme court holds that there was no cause of action stated, and reverses the judgment granting the writ. Its decision turned on the construction to be given to the California statute, approved March 12, 1885, entitled "An act to insure the better education of practitioners of dental surgery, and to regulate the practice of dentistry in the State of California." It provides a board composed of expert practitioners, with power to examine and license those who have not graduated elsewhere, and to investigate and pass upon the reputability of schools and colleges issuing certificates or diplomas, and the right of the holders of such diplomas to their possession. The powers thus conferred, the supreme court says, are broad and comprehensive and, in some respects at least, must in their nature be final. The judgment of the board, for instance, as to the qualification of an applicant for license by examination, which is largely if not wholly discretionary, it holds, must of necessity be conclusive. And the requirement to "indorse, as satisfactory, diplomas from any reputable dental college, when satisfied of the character of such institution, upon the holder furnishing evidence satisfactory to the board of his or her right to the same," it maintains, implies quite as necessarily the exercise of judgment and discretion as in the examination of an applicant as to his fitness; and that the board's action thereunder is final, and not subject to the mandatory control of the courts. On the other hand, if the statute had required that the applicant make a prescribed showing in a particular manner, and that thereupon the board should indorse his certificate, the court says that it might with some reason be said that the act was more ministerial than judicial, and that, upon the prescribed showing being made, the board could not refuse to act. The allegations that the American College of Dental Surgery "was a reputable college, and there existed and was at the command of defendants sufficient evidence of such fact," and that the petitioner furnished "evidence satisfactory to defendants that he was the person named in said diploma," the court further holds, were not the legal equivalent of an allegation that the defendant board had so found, and hence furnished no basis for the issuance of a writ of mandamus.

Health Regulations in the Adirondacks.—*To the Editor:*—Our Board of Health recently adopted the following ordinance concerning the sale of milk and cream in this village:

AN ORDINANCE CONCERNING THE SALE OF MILK IN THE VILLAGE OF SARANAC LAKE.

SECTION 1. No milk or cream shall be received, kept, offered for sale or delivered in the Village of Saranac Lake after the 20th day of June, 1897, without a permit in writing from the Board of Health, and subject to the conditions thereof.

SEC. 2. Every person applying for a permit to receive, keep, offer for sale, or delivery of milk or cream, must register his or her name and residence in a book kept for that purpose in

the office of the Board of Health, file a certificate with said Board from a qualified veterinary surgeon, or such other person as the Board of Health may designate, certifying that he has inspected all of the milch cattle of the applicant from which such milk has been drawn; that they have been found sound and healthy, and that the dairy and other appurtenances necessary to the business are kept in a cleanly and proper manner. Any failure to comply with and maintain the conditions herein set forth shall be a sufficient ground for the immediate cancellation of such permit.

SEC. 3. Any person violating any of the provisions of this ordinance shall suffer and pay a penalty of $25 for each and every offense.

Adopted April 10, and amended May 15, 1897.

E. S. McCLELLAN, M.D.,
W. F. ROBERTS,
H. L. LOBDELL,
} Board of Health.

Attest:

F. P. CALKINS, Secretary.

In view of the requirements of this ordinance, the dairymen supplying the village with milk, through the assistance of the Board of Health, procured the services of Dr. Cooper Curtis, a veterinary surgeon of national reputation, to inspect and test their cattle. A physical examination was made and the tuberculin test applied to the cattle of all the herds, aggregating 220 head. Every animal was found free from tuberculosis and otherwise in a sound and healthy condition. This remarkable immunity from tuberculosis is perhaps in some measure due to the hardy character of our native cattle, as rarely any importations from foreign herds occur. Scattered throughout this section there are always a considerable number of consumptives, many of whom ramble over the pasture fields and expectorate on the grass, and some fears were entertained by the laity lest the cattle might be infected by swallowing infected sputum; but experience seems to demonstrate that tubercle bacilli do not germinate in the vigorous stomachs of our native cattle.

Very truly yours,

E. S. McCLELLAN, M.D.

Saranac Lake, N. Y., July 5, 1897.

Liability of City for Health Officer Burning Property.—The evidence in City of Dallas v. Allen showed that the city authorized its health officer, during an epidemic of smallpox in that city, to burn property which in his judgment was infected with the disease, when in his judgment it was necessary to do so to prevent its spread. In the execution of this authority he caused a house to be burned with its contents. This suit by the owner of certain of the contents, against the city, the health officer and the sureties on his official bond followed. The district court directed the jury to find against the city and in favor of the other defendants. April 14, 1897, the court of civil appeals reversed that judgment and remanded the cause. It says that the chief question was as to the right of the city to destroy property in the exercise of the power conferred on it by its charter, to all acts and make all regulations which may be necessary for the promotion of health or the suppression of disease. It thinks that the governing rule is found in a decision of the supreme court of Texas relative to the destruction of a house by the fire department, where it held that property can be so disposed of without the city or its agents becoming liable; that such a taking does not violate the constitutional pledge that private property shall not be taken, damaged or destroyed for or applied to public without adequate compensation being made, unless by consent of the owner. But the court of civil appeals thinks that a necessity for the demolition of the building for the purpose of checking the progress of the fire would have to be shown by the city, and the destruction of a house in an isolated place that could constitute no agency in communicating the threatened danger, would not be justified. And it holds that to the same extent that a city can destroy the property of a citizen in checking a fire it can do it in stamping out an epidemic, with exemption from liability. There being in this case evidence both to the effect that the articles in question could and could not have been rendered innocuous by a simple process of disinfection, the issue of fact thus raised, it holds, should have been left to the jury to decide. Furthermore, the city having directed or authorized the destruction of the property, if it was wrongfully destroyed, the court holds that the city could not escape liability.

ASSOCIATION NEWS.

Amendment to Constitution.—The following amendment to Article IV of the Constitution and By-Laws was offered by Dr. Wm. LeMoyne Wills, of Los Angeles, Cal., in the general session on Friday, June 4, 1897, but was received too late to be incorporated with the printed minutes of the general sessions:

ART. 4. Officers. The officers of this ASSOCIATION shall be a president, four vice-presidents, one secretary, one assistant secretary, a treasurer and librarian. They shall be nominated by a special committee of one member from each State represented at the meeting and shall be elected by vote on a general ticket. Each officer shall hold his appointment for one year and until another is elected to succeed him.

Resolutions Against the Antivivisection Bill.—The Permanent Secretary has sent the following circular to the Senators and Members of the House of Representatives:

PHILADELPHIA, PA., June 29, 1897.

HON. ——, U. S. Senate, Washington, D. C.

Dear Sir:—The following resolution was unanimously adopted at the annual meeting of the AMERICAN MEDICAL ASSOCIATION in Philadelphia, June 2, 1897:

WHEREAS, Senate Bill 1063 (formerly Senate Bill 1552) has been reported favorably to the United States Senate; and

WHEREAS, We believe that its passage would seriously interfere with the progress of practical medicine, and therefore be a public calamity; therefore, be it

Resolved, That the AMERICAN MEDICAL ASSOCIATION, with a full knowledge of the contents of Senate Bill 1063, most earnestly protests against its enactment.

The day following the adoption of the above resolution, the ASSOCIATION, in general session, after listening to the address on surgery by W. W. Keen, M.D., directed, with the greatest unanimity and enthusiasm, that the following extract from his address be added to the above resolution, to be forwarded to the Senate, and later directed that a copy of the entire address should be forwarded to each member of the Senate and House of Representatives:

Animal experimentation has had also a very large share in the development of modern surgery. The whole question of the introduction of animal ligatures was begun in America by Physick, who used buckskin, and his follower Dorsey, who used kid and cut both ends short, Hartshorne, who used parchment, and Bellenger and Eve the tendon of the deer, and has been solved principally by experiment upon animals in order to determine accurately the behavior of such ligatures in the tissues. Only professional readers can appreciate what a boon to humanity this single achievement has been. Modern cerebral surgery also owes its exactness and success almost wholly to cerebral localization and antisepsis, both of which were first studied upon animals and later by the application of the knowledge so gained to man. Bacteriology would not now exist as a science, nor would accurate modern surgery and a large part of modern medicine be possible, had experiments upon animals been prohibited, as some zoöphilous women who love dogs better than men and women, and even little children, desire.

The foregoing resolutions of the AMERICAN MEDICAL ASSOCIATION were adopted by unanimous vote at its annual meeting, when the registration of delegates present was almost two thousand. The total membership of the ASSOCIATION is over eight thousand, from every State and Territory of the United States (except Wyoming) representing over one thousand State and county medical societies.

Commending these resolutions to your favorable consideration and enclosing a reprint of the bill in question, I remain,

Very respectfully, (Signed) WM. B. ATKINSON, M.D.,
Permanent Secretary.

SOCIETY NEWS.

The International Medical Congress.—A letter received from the Secretary-General of the twelfth International Medical Congress conveys the following information which is additional to that which has been published in the medical journals. As it is too late to send tickets to the American congressists, they are requested to send to the Secretary-General at Moscow their addresses in London or Berlin, or Vienna, or Paris, or to avail themselves of the National Committees in those cities, in order to receive their tickets and free passes over Russian railroads in those places. The free passes are valid from July 13 to September 13 over the following routes; Eydtkunen to Moscow, back; Moscow to St. Petersburg, or Moscow to Graniza, or Moscow to Odessa or vice versa; Graniza, Warsaw, Moscow and return by Moscow, St. Petersburg (or Odessa, or Eydtkunen, or Ungheni, or Alendrowo) or vice versa. Different lines going and returning may be chosen, and stop over is permitted. Eydtkunen to St. Petersburg is excluded from the free list. A. JACOBI, Chair. Amer. Nat'l. Com.

NECROLOGY.

BENJAMIN H. THROOP, M.D., of Scranton, Pa., who died June 26, was a man of mark and influence not only in Scranton, but throughout Pennsylvania, and the long biographies of him in his home newspapers contain some interesting facts. Though he was the first settler and the first house-builder in Scranton, he was born in Oxford, Chenango County, N. Y., November 9, 1811. His family came there in 1800. They were of the Puritan revolutionary stock, both his father and grandfather having belonged to the Fourth Connecticut Volunteers under Washington. Dr. Throop studied medicine in Fairfield Medical College, Western New York, graduating in 1832. He first settled in Honesdale, Pa. After short but successful periods of practice there and in Oswego, N. Y., he settled in the town of Providence, in the Lackawanna Valley of Pennsylvania, in 1840, but in 1847 moved to what is now the town of Scranton. He procured the completion of the Delaware, Lackawanna and Western Railroad and the extension of the Delaware and Hudson Railroad to Scranton. He obtained the first charters for gas and water, and for a hospital in the town. He laid out the suburbs now known as Hyde Park, Providence, Dunmore, Priceburg and the town of Throop. He secured the creation of the Luzerne County out of Lackawanna County. He was the first postmaster at Scranton, founder of the Lackawanna Hospital, trustee of the Danville Insane Asylum, president of the Illuminating Heat and Power Company and the chief medical adviser for many years of the railroad companies running into the city, which now numbers over one hundred and twenty thousand people. He was the first surgeon from his county in the war for the Union, taking charge of the Eighth Regiment of Pennsylvania Volunteers, and afterward of the One Hundred and Thirty-second Regiment of that State, and he established a system of Hospitals at Chambersburg and at Harper's Ferry, as well as a system of medical relief in the field, which became general throughout the Northern armies. There were no public interests in which he did not take an active part, and, while he retired from the practice of his profession many years ago, his energy in affairs was unabated to the end. About three years ago he celebrated his golden wedding.

WILLIAM C. WEY, M.D., Albany, 1849, for many years Health Officer of Elmira, N. Y., died of apoplexy June 30. He was President in 1871 of the New York State Medical Society and was also President of the Board of Managers of the New York State Reformatory.

JOHN FRELINGHUYSEN TALMAGE, M.D., New York University 1859, of Brooklyn, N. Y., died in Rye, N. Y., June 30, while on a visit to his daughter, the wife of Congressman J. Murray Mitchell. He was 64 years old.

JAMES CAVANAUGH, M.D., Easton, Pa., June 28, aged 67 years.——John Norwood, M.D., Columbus, Ga., June 28, aged 60 years.——Albert S. Rogers, M.D., Pavilion, N. Y., June 30.

MISCELLANY.

A Deserved Compliment.—Prof. Virchow is to be elected a Foreign Associate of the French Academy of Sciences.

Decrease of the Birthrate at Home.—A recent table makes the birth-rate of the United States in 1890 only 26.68 per thousand whereas in 1880 it was 30.95.

Plague Commissioner Rand not Dead.—So far the reports from Bombay of June 24, indicate that Commissioner Rand, wounded by a native while leaving the Governor's reception, was still living although in a precarious condition.

Etiology of Yellow Fever.—At the request of Dr. Freire the Government of Brazil has appointed a committee of seven prominent physicians to investigate his claims in regard to the micrococcus xanthogenicus.

Duty in Selecting Surgeons.—The supreme court of Iowa holds, in the case of Maine v. Chicago, Burlington & Quincy Railroad Company, April 8, 1897, that it was the duty of the company, under its contract with the relief department which it organized whereby it was required to furnish an injured employe surgical aid and attention, to exercise due care and diligence to select surgeons who were reasonably competent to treat him, and, if it did so, it was not liable for the negligence of the surgeons in treating and caring for his injuries. An allegation that a surgeon "either lacked the requisite skill or failed to exercise the same," the court says, does not show that he was in fact unskilful, nor that the railroad company was negligent in employing him.

Discharge from Insane Asylum after Escape.—The California statute concerning the management of the insane asylum at Napa provides that the resident physician shall be the executive officer of the institution, and shall discharge such patients as, "in his opinion, have permanently recovered their reason." Under this provision, where the physician had come to the conclusion that a patient was restored to reason, and had intended to order his discharge if his condition did not change in a few days, the supreme court of that State holds, in people v. Geiger, April 7, 1897, that the fact that the patient had in the meantime escaped, and was not present when his discharge as "recovered" was entered of record by the physician, was no ground for impeaching the physician's act.

The Sensational "Affaire" Thomson at Paris, mentioned in these columns at the time, resulted in the condemnation to five years imprisonment of the two physicians involved. Whether legally liable or not, Dr. B. was certainly indiscreet in curetting the uterus of a woman without ascertaining whether she was pregnant or not, and with such a lack of skill as to extract loops of the intestines through the cervix, not to mention the impropriety of performing such an operation (for which there was not the slightest excuse of urgency) on his dining table, with the assistance of his cook and coachman. He was on the staff of the *Revue Médicale*, and this magazine denounces Brouardel's expert testimony in the bitterest terms. Nothing seems to have been proved against Lajarrige except that he had directed Miss Thomson to Boisleux.

Not Hospital "Treatment."—One of the questions in an application for life insurance was as to whether the applicant had ever been under treatment in any hospital, asylum or other institution. This was answered, "No," in the case of Chinnery v. United States Industrial Insurance Company. But there was evidence that some twenty-five years previously something had blown into the applicant's eye, that she went to a hospital, by appointment, to have it removed, and returned the same evening. This, the appellate division of the supreme court of New York holds, April 6, 1897, was not being "under treatment in any hospital" within the meaning of the policy. It adds that it had nothing to do with the general health of

the assured, and if it had been known to the company, could not possibly have been considered by it as a reason for refusing to issue a policy of insurance.

H. D. Didama, M.D.—A dinner was given in honor of Henry D. Didama, M.D., on the occasion of his fiftieth anniversary as a practitioner of medicine, by the faculty and the Alumni Association of the College of Medicine, Syracuse (N.Y.) University, on Wednesday evening, June 9. Dr. Nathan Jacobson acted as toastmaster. Eulogistic speeches were made by Dr. E. D. Ferguson, Dr. A. Vanderveer, Dr. Matthew D. Mann, Dr. Wm. S. Ely, Dr. Robert L. Morgan, Dr. Brace W. Loomis, Dr. Henry O. Marcy, Dr. John Van Duyn. Speeches were made by Chancellor James R. Day, Dean James B. Brooks, Rev. George B. Spalding, Hon. Frank Hiscock, Hon. Carroll E. Smith. The occasion was one long to be remembered by Syracuseans, and Dr. Didama's colleagues in the ASSOCIATION throughout the country join in congratulations.

Domestic Remedies in the Retrospect.—The *N. Y. Evening Post* of July 3 in a running summary of "The American Frugal Housewife" printed in 1835, refers to several expedients for home treatment. The usual precaution "before sending for the doctor" appears to have been omitted. To prevent lockjaw, lye, a rind of pork, strong soft soap, spirits of turpentine, and pulverized chalk are recommended; for throat distemper, the old name for diphtheria, a poultice of roasted apple mixed with an ounce of tobacco, the whole wet with spirits of wine and spread on a linen rag to be bound about the throat, is a panacea; to stop the blood from a wound apply scrapings of sole leather; a spoonful of ashes stired in cider is suggested to relieve nausea in cholera morbus. A salve to reduce inflammation in wounds is made from lard melted and cooled five times in succession, then simmered with sliced onions, and once more cooled; low-blackberry tea is prescribed for calomel sore mouth.

Colleges.

THE annual commencement of the Yale Medical School was held June 30. About thirty new doctors received degrees.——Merced University has conferred the degree of LL.D. on W. A. Adams, M.D., Chief Surgeon of the Fort Worth (Texas) and Denver City Railway Company.——The Maine Medical School, Bowdoin College, at Brunswick on June 23, presented thirty-four diplomas.

Societies.

THE ninth June meeting of the Dubuque (Iowa) Medical Society was held June 30.——The Eastern Iowa District Medical Society met at Washington, Iowa, June 24. The new officers chosen are Dr. W. B. La Force of Ottumwa, president; Dr. Grimes of Wapello, vice-president; Dr. M. C. Carpenter of Fairfield, secretary and treasurer.

Hospitals.

A NEW free hospital was opened by the Christian Hospital Association Los Angeles, Cal., July 1.——The Salem (Mass.) Hospital is the recipient of $10,000 for the establishment of a home for convalescents, a memorial to William G. Webb, who at the time of his death (May 17, 1896) was president of the hospital corporation.——An annex to St. Vincent's Hospital, New York City, has been opened at Far Rockaway, about three minutes' walk from the station. Ocean breezes, ample rooms, well shaded grounds and trained nurses are mentioned as the attractions.——The Ladies' Deborah Nursery and Child's Protectory, New York city, has passed into the hands of a permanent receiver.

THE proposed new hospital of Harlem, New York city, is likely to meet with much opposition by the owners of the site. It was to have been located on the east side of Lenox Avenue between 135th and 136th Streets, but the Equitable Life Insurance Society demur because the necessary condemnation proceedings will give them only the market price instead of the prospective value. The old Harlem Hospital has outgrown its capacity and a new institution in the upper section of the city proper is an absolute necessity. The Commissioners of Charities, who have taken in consultation the proper medical authorities, have authorized an expenditure of $300,000 upon the building alone and the cost of the land as calculated should not have been more than $200,000 at the extreme limit.

Washington.

THE CHINESE APOTHECARY.—A local Chinaman has made application for a license to sell medicine to his countrymen in the District.

MANDAMUS FOR THE BOARD OF MEDICAL SUPERVISORS.—The Board of Medical Supervisors for the District, in the opinion of Dr. Alderman, have been too slow in issuing a license for him to practice medicine and surgery in the District, therefore he applied to the courts to secure his rights, as he understands them. Judge Bradley issued a preëmptory writ of mandamus, requiring the Board of Examiners to show cause, etc.

HOSPITAL FOR THE INSANE.—President McKinley has appointed Ex-Surgeons General Francis M. Gunnell of the navy and John Moore of the army as members of the Board of Visitors to the Government Hospital (St. Elizabeth's) for the Insane.

THE CONTAGIOUS HOSPITAL SITE.—The Commissioners of the District have reported adversely the recommendation of Senator McMillan to locate the contagious hospital, recently appropriated for, in the grounds of the Washington Asylum. They base their adverse report on the bad hygienic conditions adjacent to the Asylum grounds. The eastern branch of the river, which passes directly back of it, is a cesspool and hotbed for disease breeding, it being practically an open sewer, receiving the sewage from a large portion of the District, where it is subsequently washed over the flats. This pestilential condition has more than once been reported by the surgeons in charge of the U. S. Naval Hospital and Marine Barracks and the surgeons in charge of the Government Asylum for the Insane, as being directly causative of a great deal of otherwise preventable disease in these institutions. The Medical Society and the Washington Board of Trade, through their health committees, have frequently pointed out the dangers of this locality. It is probable that the contagious diseases will eventually be treated in isolated buildings, to be erected in the grounds of two of the general public hospitals of the District.

Cincinnati.

DR. GILBERT I. CULLEN is announced as associate editor of the *Medical Fortnightly* of St. Louis.

DR. O. V. LIMERICK, who was jointly indicted with ex-Health Officer Dr. J. W. Prendergast on the charge of attempted blackmail of the Fraser Tablet Co., has been granted a new trial by the circuit court.

DR. ROBERT SUTTLER has placed an order with Mundheuk, the sculptor, for a bust of the late Dr. E. Williams, who was the founder of the Ophthalmic Institute of Cincinnati.

THE TUBERCULOUS PATIENTS and convalescing children of the Cincinnati Hospital have been removed to the branch hospital, which is located twelve miles from the city and in every way adapted for the care and treatment of these patients.

THE ANNUAL MEETING of the City Hospital medical staff resulted in the election of Dr. N. P. Dandridge president and Dr. J. C. Oliver secretary.

DR. JOHN K. WOODS of Van Wert, Ohio, has been appointed chief surgeon of the Ohio division of the Jackson and Mackinaw Railway.

THE HEALTH DEPARTMENT has issued an order to the effect that hereafter all cattle added to the dairies supplying milk to the city must be tested with tuberculin, and those found diseased will be condemned.

AT THE MEETING of the Academy of Medicine last week, Dr. James T. Whittaker read a paper entitled "Six Years with Tuberculin." He claimed that this remedy had proven to be the most valuable diagnostic agent and single remedy we have. The period of childhood was given as being the time of most frequent infection, and that of puberty of most frequent manifestations. Children who suffer with frequent or more or less continuous malaise, who feel more than others the confinement of the school room, who are said to be predisposed to phthisis, should be tested for some depot of tuberculosis. Children who live in an atmosphere of infection are almost necessarily subjects. Among the earliest signs mentioned usually are a peculiar odor of the breath, a red line on the gums, clubbed fingers, and local signs, as affection of the

bones, joints, skin, testes, Fallopian tubes, adenitis. Scrofula is external tuberculosis. There is a pre-tubercular albuminuria, which is recognized by delicate tests, as by that of Spiegler. Cardiac palpitation and early dyspnea belong to the same toxemia. This albuminuria is not a nephritis, but is a toxic alteration of the albumin whereby it becomes more dialyzable. The Diazo reaction is less common and less reliable. The search for the bacillus in the blood in hectic fever and the other blood tests are really quite superfluous. Cough is most suspicious when it occurs in the morning and evening. Local depots excite no cough and there is no cough in acute miliary tuberculosis. The great contribution of modern times came with the discovery of the tubercle bacillus in the sputum. The use of the centrifuge, after fluidification of the sputum with soda or potash, shortens the examination and increases the value of the test. The pseudo-bacillus, the bacillus of leprosy, of syphilis, and of anemia were next differentiated. The discovery of elastic tissues was passed by because by this time there are physical signs. The importance of hemoptysis was remarked. It is not too sweeping an assertion to say that hemoptysis in perfect health means tuberculosis. Next followed the demonstration by inoculation of the guinea pig, which is certain but too slow to be of diagnostic value. In this way the clear effusions of pleurisy are determined to be tubercular in nearly three-fourths of the cases. The value of tuberculin in the diagnosis of the disease in cattle is universally accepted. According to the report of Salmon, thus far we have yet to meet the first case which reacted and did not show tuberculosis upon postmortem examination. The value of tuberculin was slow of recognition in man because of various objections, one, that reaction may set in in the absence of tuberculosis. These cases are now explained by the existence of concealed latent depots. The objection of Klemperer to the effect that reaction will occur with every deposit, even in latent cases, is really only confirmation of the value of the test. The most serious objection, that of Virchow, that tuberculin awakens tuberculosis from latent sources and disseminates the disease, an objection which was caught up and echoed on all sides, has been found to rest on erroneous premises. All the individuals who have had the most to do with the use of the remedy disclaim any danger of this kind. Thus Penzoldt, Wassermann, Prior, Springthorp and Klein all speak of the absolute safety of the remedy in proper use. The speaker had himself used tuberculin every day in hospital and private practice for six years, in now nearly one thousand cases, and had never seen any kind of evil result. Most of his use of the agent had been, of course, in the small therapeutic dose. But in the larger quantity necessary to secure the test reaction he had come to consider it the best possible and a perfectly safe means of diagnosis. Koch declared that his own individual experience in the early diagnosis of tuberculosis in man in more than one thousand cases shows its perfect safety and puts the diagnostic value of tuberculin in recognition of the disease in man on the same plane as in animals. The action of the remedy is ill understood, notwithstanding all the work that has been expended upon it. Introduced under the skin, it produces a general leucocytosis and fever, but tolerance is soon begotten to the use of the agent, so that individuals who react to a few milligrammes become finally insensitive to one hundred times this quantity. The knowledge of the existence of this tolerance to a poison was known in antiquity, and the principle is utilized in increasing the antitoxic properties of blood serum. The old tuberculin neutralized only the toxins of the tubercle bacillus, but in this method superficial processes are detached and discharged while reabsorption takes place in the interior of organs. Unfortunately, the effect is in no case final, because of the fact that the remedy has immunizing properties only against the toxins. With the new tuberculin there is higher promise because it immunizes against the tubercle bacilli themselves. "I have used the new tuberculin for about six weeks in twenty selected cases. The time is too soon to say anything more than that the dose is well borne by these patients, the signs of improvement are more continuous and the patients, most of them individuals under treatment with the old tuberculin, are better suited with the new."

THE PUBLIC SERVICES.

NOTICE.—An Army Medical Board will be in session at Washington City, D. C., during October, 1897, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before September 1, 1897, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between 22 and 29 years of age, and a graduate from a Regular Medical College, as evidence of which, his Diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning November 1, 1897.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

GEORGE M. STERNBERG,
Surgeon-General, U. S. Army.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 5 to 11, 1897.

Capt. Robert R. Ball, Asst. Surgeon, leave of absence granted is extended two months.

Capt. Charles M. Gandy, Asst. Surgeon, now on duty at Washington Bks., D. C., will report in person, on July 1, 1897, to the governor of the Soldiers' Home near Washington, D. C., for temporary duty during the absence on leave of Col. William H. Forwood, Asst. Surgeon-General, and upon the return of that officer will rejoin his proper station.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending July 3, 1897.

P. A. Surgeon G. B. Wilson, detached from the "Yantic," ordered home and granted two months' leave.

Asst. Surgeon J. F. Leys, detached from the "Vermont" July 6 and ordered to the "Helena" July 7.

Asst. Surgeon C. E. Riggs, ordered to the "Vermont" July 6.

PAMPHLETS RECEIVED.

Columbian University Announcement for 1897-1898. Washington, D.C.

Experiment with the Serum Reaction as a Test for Typhoid Infection in Water. By Wyatt Johnston, M.D. Reprint from the New York Medical Journal for June 5, 1897.

Howard University Medical Department Announcement for 1897-1898. Washington, D. C.

Ichthyol as a Therapeutic Agent in the Treatment of Diseases of the Uterine Annexa. By Robert Bell, M.D. Reprinted from the Edinburgh Medical Journal for April, 1896.

Infant's Weight Chart. By J. P. Crozer Griffith, M.D., Philadelphia.

Program of the Annual Meeting of the Medical Society of New Jersey, 1897.

Northwestern University Medical School Announcement for 1897-1898. Chicago.

CHANGE OF ADDRESS.

Bowers, C. E., from St. Louis, Mo., to Wichita, Kan.

Campbell, A. W., from 215 Sangamon to 358 W. Adams, Chicago, Ill.

Devine, G. C., from Oregon to Chetek, Wis.

Ducker, J. O., from 100 State St. to 360 Erie St., Chicago, Ill.

Diemert, J. R., from 9½ Woodland Av., to 109 Ontario St., Cleveland, Ohio.

Jones, Philo E., from Mercantile to Atlas Block, Salt Lake City, Utah.

Kirkpatrick, T., from State House to 828 Kansas Av., North Topeka, Kan.

Lawrence, G. H., from Creston, Ill., to 940 W. Madison St., Chicago, Ill.

Lesan, Cassius T., from Mt. Ayr to Bedford, Iowa.

Lockwood, W. D., from Rock Port, Pa., to 728 Spruce St., Philadelphia, Pa.

McCreight, A. H., from Chicago, Ill., to Ft. Dodge, Iowa.

Montgomery, A. B., from Chicago, Ill., to Reynolds, Ill.

Ritter, C. L., from 846 Virginia Av. to 866 Virginia Av., Indianapolis, Ind.

Smolt, A. E., from Chicago, Ill., to Stillwater, Minn.

Strong, A. W., from Chicago, Ill., to Fort Atkinson, Wis.

Schenck, W. L., from New Castle, Colo., to 701 Brigham Av., Topeka, Kan.

LETTERS RECEIVED.

Ames, Delano, Baltimore, Md.; Adams, W. A., Fort Worth, Tex.; Atkinson, Wm. B., Philadelphia, Pa.; Ammonol Chemical Co., The, New York, N. Y.

Brittin, A. L., Athens, Ill.; Barnhill, J. F., Indianapolis, Ind.; Boston Filter Co., Chelsea, Mass.; Berger, L. A., Kansas City, Mo.

Crawford, A., Miles, Iowa; Courtright, F. E., Shawtown, Ohio; Coone, Barthena, Hanna City, Ill.

De Schweinitz, E. A. (2), Washington, D. C.; Doliber-Goodale Co., Boston, Mass.; Dubs, R. S., Chicago, Ill.

Eastman, Joseph (2), Indianapolis, Ind.; Elkin, W. S., Atlanta, Ga.; Erwin, William H., Oak Grove, Mich.

Gittelson, S. J., Philadelphia, Pa.; Guiteras, Ramon, New York, N. Y.; Greason, W. B., Lathrop, Mo.

Hughes, C. H., St. Louis, Mo.; Hirschfelder, J. O., San Francisco, Cal.; Hoff, John Van R., Vancouver Barracks, Wash.

Johnston, Wyatt, Montreal, Can.

Knoff, S. A., New York, N. Y.; Kress & Owen Co., New York, N. Y.

Lerche, W., Ferryville, Wis.; Lewis, H. K., London, England; Lockwood, T. E., Detroit, Mich.

McCurdy, Stewart L., Pittsburgh, Pa.; Mills, Chas. K., Philadelphia, Pa.; Mizell, A. G., Humboldt, Ill.; Mather, E., Paterson, N. J.; Meacher, William, Portage, Wis.; Manley, Thomas H., New York, N. Y.; McBride, M. A., Tahlequah, I. T.; Moloney, D. Monas, New York, N. Y.; Minaker, W. R., Onsted, Mich.

Ohio Medical University, Columbus, Ohio.

Parkinson, James H., Sacramento, Cal.; Phelps, A. M., New York, N. Y.; Pope, Curran, Louisville, Ky.; Patterson, C. E., Washington, D. C.

Reynolds, Dudley S., Louisville, Ky.; Rieman, Wm. H., Detroit, Mich.; Reed, R. Harvey, Columbus, Ohio; Reed, W. W., Fowler, Colo.

Sternberg, George M., Washington, D. C.; Southern Medical College, Atlanta, Ga.; Stillman, G. B., Cleveland, Ohio; Scott, W. A., Swanton, Ohio; Sweet, C. L., Boise, Idaho; Squibb, E. H., Brooklyn, N. Y.; Slagle, Chas. D., Portsmouth, Ohio; Scott, Clifton, Des Moines, Iowa.

The G. F. Harvey Co., Saratoga Springs, N. Y.; Tyree, J. S., Washington, D. C.

Weaver, H. B., Asheville, N. C.; Woman's Medical College, Philadelphia, Pa.; Waters, G. M., Columbas, Ohio.